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=> FILE HCAPL

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FILE LAST UPDATED: 6 Mar 2007 (20070306/ED)

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=> D QUE

L11 26 SEA FILE=REGISTRY ABB=ON (1318-93-0/BI OR 12068-50-7/BI OR
12172-85-9/BI OR 12173-47-6/BI OR 12173-60-3/BI OR 12174-06-0/B
I OR 12174-40-2/BI OR 12285-88-0/BI OR 12285-95-9/BI OR
12286-87-2/BI OR 12304-65-3/BI OR 12417-86-6/BI OR 12424-32-7/B
I OR 12510-56-4/BI OR 1318-00-9/BI OR 1319-41-1/BI OR 1344-28-1
/BI OR 196522-45-9/BI OR 252254-69-6/BI OR 2835-96-3/BI OR
307975-23-1/BI OR 53320-86-8/BI OR 56997-00-3/BI OR 6683-19-8/B
I OR 9003-07-0/BI OR 9010-79-1/BI)

L13 4 SEA FILE=REGISTRY ABB=ON L11 AND PMS/CI
 L14 1 SEA FILE=REGISTRY ABB=ON 2835-96-3
 L15 1 SEA FILE=REGISTRY ABB=ON 6683-19-8
 L16 22 SEA FILE=REGISTRY ABB=ON L11 NOT L13
 L17 20 SEA FILE=REGISTRY ABB=ON L16 NOT (L14 OR L15)
 L18 697966 SEA FILE=HCAPLUS ABB=ON L13 OR POLYOLFIN? OR PP OR PE OR
 POLYETHYLENE? OR POLYPROPYLENE? OR (OLEFIN? OR ETHYLE? OR
 PROPYLEN?) (3A)?POLYMER?
 L19 430604 SEA FILE=HCAPLUS ABB=ON L14 OR L15 OR PHENOL?
 L20 28935 SEA FILE=HCAPLUS ABB=ON L18 AND L19
 L21 519246 SEA FILE=HCAPLUS ABB=ON L17 OR CLAY# OR MONTMORILLON? OR
 BEIDELLITE OR VOLKONSKOIT? OR LAPONITE? OR HECTORITE? OR
 SAPONITE? OR SAUCONITE? OR MAGADITE? OR KENYAITE? OR SOBOCKITE?
 OR SWINDOD? OR STEVENSITE? OR VERMICULITE OR HALLOYSITE? OR
 ALUMIN?(W)?OXIDE? OR HYDROTALCITE? OR ILLITE OR RECTORITE OR
 TAROSOVITE
 L22 557301 SEA FILE=HCAPLUS ABB=ON L21 OR SVINDORD? OR TAROSOVITE? OR
 LEDIKITE? OR MICA
 L23 1758 SEA FILE=HCAPLUS ABB=ON L20 AND (L21 OR L22)
 L24 52 SEA FILE=HCAPLUS ABB=ON L23 AND NANOCOMPOS?
 L26 1378 SEA FILE=HCAPLUS ABB=ON TARASOVITE OR SWINEFORD? OR CLOISITE
 L27 9 SEA FILE=HCAPLUS ABB=ON L20 AND L26
 L28 55 SEA FILE=HCAPLUS ABB=ON L24 OR L27
 L29 16656 SEA FILE=HCAPLUS ABB=ON L19(L)MOA/RL
 L30 25 SEA FILE=HCAPLUS ABB=ON L28 AND L29
 L31 3 SEA FILE=HCAPLUS ABB=ON L24 AND ?PHENOL? (3A) (MODIF? OR
 STABIL?)
 L32 26 SEA FILE=HCAPLUS ABB=ON L30 OR L31

=> D L32 BIB ABS IND HITSTR 1-26

L32 ANSWER 1 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2006:874727 HCAPLUS
 DN 145:455799
 TI Gas barrier properties of PP/EPDM blend **nanocomposites**
 AU Frounchi, Masoud; Dadbin, Susan; Salehpour, Zahra; Noferesti, Mohsen
 CS Polymer Engineering Group, Department of Chemical and Petroleum
 Engineering, Sharif University of Technology, Tehran, Iran
 SO Journal of Membrane Science (2006), 282(1+2), 142-148
 CODEN: JMESDO; ISSN: 0376-7388
 PB Elsevier B.V.
 DT Journal
 LA English
 AB **Nanocomposites of polypropylene (PP**
)/ethylene-propylene-diene rubber (EPDM) blend with
montmorillonite-based organoclay were prepared in a solvent blending
 method. Solvent blending of PP and EPDM in a composition of 50:50
 formed a two phase morphol. in which EPDM appeared as dispersed phase with
 irregular shape. The size of dispersed phase reduced significantly to
 almost spherical domains by addition of the nanoclay. For better dispersion
 of nanoclay in the PP/EPDM blend, an antioxidant was used as
 compatibilizer. State of nanoclay dispersion was evaluated by x-ray
 diffraction (x-ray diffraction), and also, by a novel method using
 permeability measurements data in a permeability model. The measured
 d-spacing data proved a good dispersion of nanoclay at low clay
 contents along with compatibilizer. The permeability model for
 flake-filled polymers was used to estimate the aspect ratio of nanoclay
 platelets in the blend **nanocomposites**. Oxygen and carbon
 dioxide barrier property of the PP/EPDM blend improved about

two-fold by adding only 1.5 vol% organoclay. Differential scanning calorimetry measurements indicated a decrease in crystallinity up to 27% suggesting a reduction in spherulites growth. However, the melting temperature remained unchanged. The increase in barrier property of the blend, despite a decrease in crystallinity, indicated the dominant role of organoclay platelets in barrier improvement. According to the permeability model, high barrier property could be obtained if the aspect ratio of the flakes or platelets of the organoclay could be significantly increased in the blend. Scanning electron micrographs of fracture surface of **nanocomposite** membranes broken at low temps., exhibited a ductile surface indicating a good compatibility of **PP** and EPDM rubber and also, a possible contribution of nanoparticles to deformation mechanisms, such as extensive shear yielding in the polymer blend.

CC 38-3 (Plastics Fabrication and Uses)

ST **polypropylene EPDM clay nanocomposite**
membrane permeability

IT EPDM rubber

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(blends with **polypropylene**; gas barrier membrane properties
of **PP/EPDM blend nanocomposites**)

IT Polymer morphology
(fracture-surface; gas barrier membrane properties of **PP/EPDM**
blend **nanocomposites**)

IT Coupling agents

Crystallinity

Crystallization

Membranes, nonbiological

Nanocomposites

Permeability

(gas barrier membrane properties of **PP/EPDM blend**
nanocomposites)

IT Polymer blends

RL: PRP (Properties)

(gas barrier membrane properties of **PP/EPDM blend**
nanocomposites)

IT Fracture surface morphology

(polymeric; gas barrier membrane properties of **PP/EPDM blend**
nanocomposites)

IT 9003-07-0, **Polypropylene**

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(blends with EPDM; gas barrier membrane properties of **PP/EPDM**
blend **nanocomposites**)

IT 6683-19-8, Irganox 1010

RL: MOA (Modifier or additive use); USES (Uses)

(coupling agent; gas barrier membrane properties of **PP/EPDM**
blend **nanocomposites**)

IT 841313-98-2, Nanolin DK 4

RL: MOA (Modifier or additive use); USES (Uses)

(gas barrier membrane properties of **PP/EPDM blend**
nanocomposites)

IT 9003-07-0, **Polypropylene**

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(blends with EPDM; gas barrier membrane properties of **PP/EPDM**
blend **nanocomposites**)

RN 9003-07-0 HCAPLUS

CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



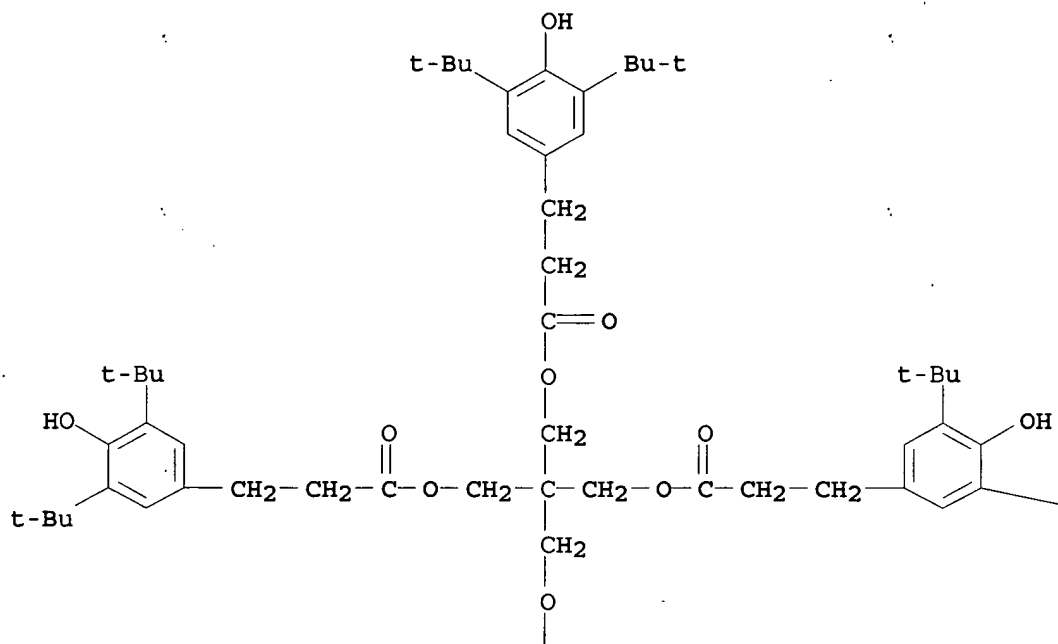
IT 6683-19-8, Irganox 1010

RL: MOA (Modifier or additive use); USES (Uses)
(coupling agent; gas barrier membrane properties of PP/EPDM
blend nanocomposites)

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-
oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

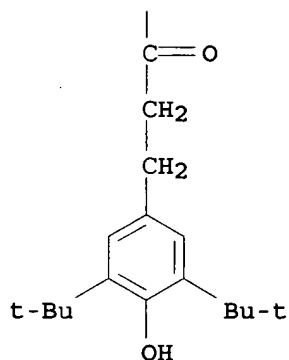
PAGE 1-A



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PAGE 2-A



RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 2 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:715025 HCAPLUS

DN 145:211826

TI Radiation-crosslinkable low-smoke halogen- and phosphorus-free
fire-resistant heat-shrinkable nanocomposite material
heat-shrinkable nanocomposite material and its preparation

IN Hu, Hui; Zhang, Youyong; Cheng, Genshui; Shen, Jingqiang

PA Guangzhou Kaiheng Kosoo Co., Ltd., Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1803907	A	20060719	CN 2005-10102257	20051212

PRAI CN 2005-10102257 20051212

AB The title material is prepared from **ethylene-vinyl acetate (EVA) copolymer 50-80, ethylene-octene copolymer 10-30, compatibilizers 10-20, a polysiloxane 5-10, a hindered phenol/sulfide composite antioxidant 1-5, magnesium hydroxide nanoparticle flame retardant 60-120, surface-activated ultrafine aluminum hydroxide and/or magnesium hydroxide 100-180, a lubricant 1-3, a sensitizer (such as trimethylolpropane triacrylate, pentaerythritol tetraacrylate, or triallyl isocyanurate) 1-3, and color masterbatch 0-20 parts by blending all components other than color masterbatch at 80° for 5-10 min, extruding at 100-160°, granulating, mixing with color masterbatch, extruding at 100-160° to obtain tubular material, subjecting to radiation of electron beam with dose 4-10 Mrad, stretching at 100-180° by 1-3 times, and cooling.**

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 38

ST **ethylene vinyl acetate copolymer blend radiation crosslinkability; octene ethylene copolymer blend fire resistance; heat shrinkable nanocomposite material**

IT Thioethers

RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable **nanocomposite material heat-shrinkable nanocomposite material**)

IT Phenols, uses

RL: MOA (Modifier or additive use); USES (Uses)
(hindered, antioxidant; radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable **nanocomposite material heat-shrinkable nanocomposite material**)

IT Antioxidants

Fire-resistant materials
Fireproofing agents
Heat-shrinkable materials
Lubricants

Nanocomposites

Polymer blend compatibilizers
(radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable **nanocomposite material heat-shrinkable nanocomposite material**)

IT Polysiloxanes, uses

RL: MOA (Modifier or additive use); USES (Uses)
(radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable **nanocomposite material heat-shrinkable nanocomposite material**)

IT Molded plastics, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(radiation-crosslinked low-smoke flame-retardant heat-shrinkable **nanocomposite material free of halogen and phosphorus, and its preparation**)

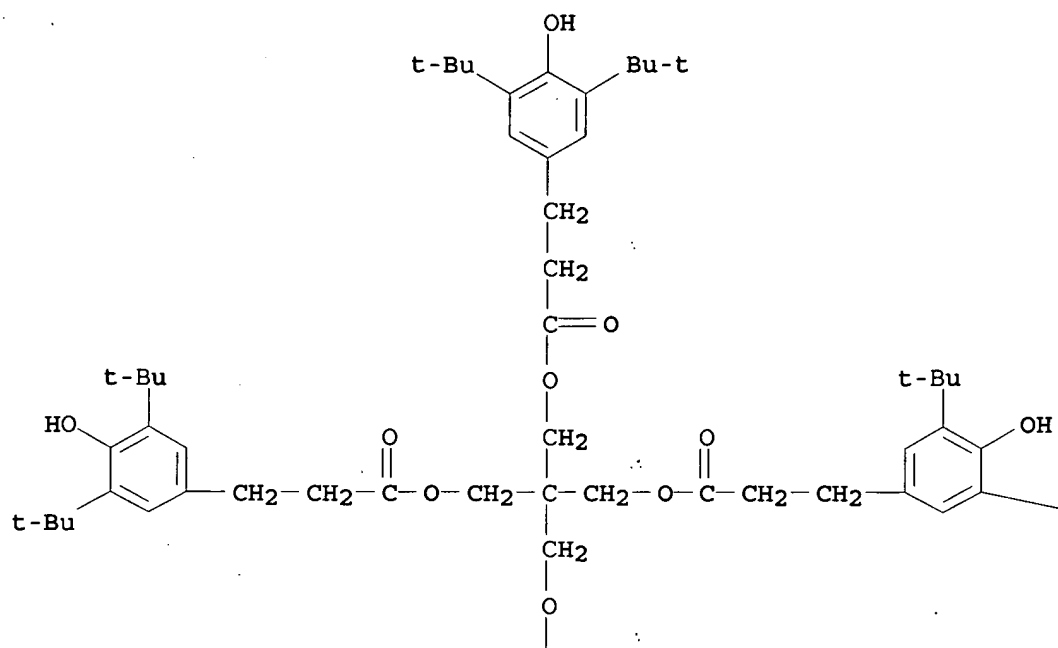
IT 123-28-4, Dilauryl thiodipropionate 693-36-7, Dioctadecyl thiodipropionate 2082-79-3, Antioxidant 1076 **6683-19-8**, Antioxidant 1010

RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable **nanocomposite material heat-shrinkable nanocomposite material**)

IT 74-85-1D, **Ethylene, polymers with acrylates, maleated 79-10-7D, Acrylic acid, esters, polymers with ethylene, maleated 108-31-6D, Maleic anhydride, reaction products with ethylene copolymers 24937-78-8D, Ethylene**

- vinyl acetate copolymer, maleated
RL: MOA (Modifier or additive use); USES (Uses)
(compatibilizers; radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable nanocomposite material heat-shrinkable nanocomposite material)
- IT 1309-42-8, Magnesium hydroxide
RL: MOA (Modifier or additive use); USES (Uses)
(nanoparticles, fireproofing agents; radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable nanocomposite material heat-shrinkable nanocomposite material)
- IT 9016-00-6, Polydimethyl siloxane 21645-51-2, Aluminum hydroxide, uses 31900-57-9, Polydimethyl siloxane
RL: MOA (Modifier or additive use); USES (Uses)
(radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable nanocomposite material heat-shrinkable nanocomposite material)
- IT 24937-78-8, Ethylene-vinyl acetate copolymer
36446-02-3, Trimethylolpropane triacrylate homopolymer 57592-66-2, Pentaerythritol tetraacrylate homopolymer 70800-37-2, Ethylene octene copolymer
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable nanocomposite material heat-shrinkable nanocomposite material)
- IT 557-04-0, Magnesium stearate 557-05-1, Zinc stearate
RL: MOA (Modifier or additive use); USES (Uses)
(radiation-crosslinked low-smoke flame-retardant heat-shrinkable nanocomposite material free of halogen and phosphorus, and its preparation)
- IT 26355-18-0, Triallyl isocyanurate homopolymer
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(radiation-crosslinked low-smoke flame-retardant heat-shrinkable nanocomposite material free of halogen and phosphorus, and its preparation)
- IT 6683-19-8, Antioxidant 1010
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; radiation-crosslinkable low-smoke halogen- and phosphorus-free fire-resistant heat-shrinkable nanocomposite material heat-shrinkable nanocomposite material)
- RN 6683-19-8 HCAPLUS
- CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

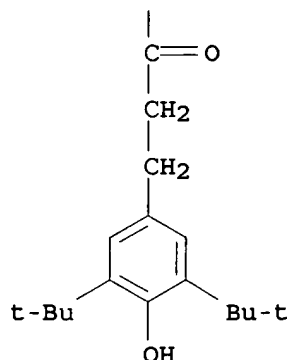
PAGE 1-A



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PAGE 2-A



L32 ANSWER 3 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:691572 HCAPLUS

DN 145:315646

TI Effects of production parameters on the structure of resol type phenolic resin/layered silicate nanocomposites

AU Kaynak, Cevdet; Tasan, C. Cem

CS Department of Metallurgical and Materials Engineering, Middle East Technical University, Ankara, TR-06531, Turk.

SO European Polymer Journal (2006), 42(8), 1908-1921

CODEN: EUPJAG; ISSN: 0014-3057

PB Elsevier Ltd.

DT Journal

LA English

AB Polymer/layered silicate nanocomposites belong to one of the most promising group of materials of the past few decades and most probably for the near future. Following the pioneering works of Toyota Research Group in the 1980s, the interest on these materials increased rapidly and research is now being carried out world wide, using all kinds of polymers as base material. In this present study, the aim was to study the effects of several different production parameters; on the morphol. of resol type phenol formaldehyde based layered silicate nanocomposites produced by mixing and casting. For this purpose; two different liquid resol type phenolic resins (PF 76 and PF 76TD), two different curing methods (heat cure route and acid cure route), two different montmorillonite clays (unmodified Cloisite Na+ and modified Rheospan), two different clay sources (Wyoming-USA and Tokat-Turkey), and five different clay amts. (0.5%, 1%, 1.5%, 3%, 10%) were used. X-ray diffraction, SEM, TEM analyses and mech. tests indicated that resol type phenolic resins lead to better structures when they were modified with ethylene glycol and cured by the use of an acidic curing agent. Use of modified clay with no more than 1.5 wt% in the phenolic matrix lead to certain degree of exfoliation consequently better structure and higher mech. performance.

CC 37-6 (Plastics Manufacture and Processing)

ST resol phenolic resin montmorillonite nanocomposite prodn parameter effect morphol

IT Bending strength

Crosslinking catalysts

Fracture toughness

Impact strength

Polymer morphology

(effects of production parameters on structure of resol type
phenolic resin/montmorillonite nanocomposites
)

IT **Phenolic resins, properties**
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(effects of production parameters on structure of resol type
phenolic resin/montmorillonite nanocomposites
)

IT 9003-35-4, Formaldehyde-phenol resin
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(PF 76; effects of production parameters on structure of resol type
phenolic resin/montmorillonite nanocomposites
)

IT 909004-51-9, Diethylene glycol-ethylene glycol-formaldehyde-
phenol copolymer
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(PF 76TD; effects of production parameters on structure of resol type
phenolic resin/montmorillonite nanocomposites
)

IT 1318-93-0, **Montmorillonite** ((Al_{1.33}-1.67Mg_{0.33}-0.67) (Ca₀-
1Na₀-1) 0.33Si₄(OH)₂O₁₀.xH₂O), uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(Resadiye; effects of production parameters on structure of resol type
phenolic resin/montmorillonite nanocomposites
)

IT 80-48-8, Methyl-4-toluenesulfonate
RL: CAT (Catalyst use); USES (Uses)
(effects of production parameters on structure of resol type
phenolic resin/montmorillonite nanocomposites
)

IT 909004-54-2, Nanomer I 33M
RL: **MOA (Modifier or additive use)**; USES (Uses)
(effects of production parameters on structure of resol type
phenolic resin/montmorillonite nanocomposites
)

IT 1318-93-0, **Montmorillonite** ((Al_{1.33}-1.67Mg_{0.33}-0.67) (Ca₀-
1Na₀-1) 0.33Si₄(OH)₂O₁₀.xH₂O), uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(Resadiye; effects of production parameters on structure of resol type
phenolic resin/montmorillonite nanocomposites
)

RN 1318-93-0 HCAPLUS
CN Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67) (Ca₀-1Na₀-1) 0.33Si₄(OH)₂O₁₀.xH₂O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 4 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2006:666722 HCAPLUS
DN 145:190056
TI Nylon/clay nanocomposite fuel tank, and its
preparation
IN Yang, Guisheng; Huang, Yuqiang; Shen, Shijun; Li, Zhi; Sun, Wei; Wu,
Fenrong
PA Shanghai Genius Advanced Material Co., Ltd., Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.
CODEN: CNXXEV
DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1796456	A	20060705	CN 2004-10099074	20041227
PRAI	CN 2004-10099074		20041227		

AB The title fuel tank is prepared from a composition comprising a nylon monomer 60-99, layered silicate **clay** with cation exchange capacity 50-200 meq/100 g 0.1-20, a toughening agent (such as nylon) 3-30, a hindered **phenol** antioxidant 0.3-2, a light stabilizer 0.5-5, a defoaming agent 0.1-10, a catalyst (such as alkaline metal salt, sodium alkoxide, or sodium hydroxide) 0.1-5, an activator (such as toluene diisocyanate, acetylcaprolactam, hexamethylene diisocyanate, etc.) 0.1-5, and carbon black or wollastonite 0.1-20 parts. The title method comprises mixing **clay** with 10-60% nylon monomer at 80-130°; adding other components other than activator to give component A; mixing residual nylon monomer with activator at 120-180° to give component B; casting A and B into a mold at 120-250° and molding. The fuel tank has improved barrier property and good mech. properties.

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 51

ST nylon **clay nanocomposite** fuel tank prepn

IT Antifoaming agents

Antioxidants

Fuel tanks

Impact modifiers

Light stabilizers

Nanocomposites

Polymerization catalysts

(preparation of nylon/**clay nanocomposite** fuel tank with high barrier property)

IT Polyamides, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (preparation of nylon/**clay nanocomposite** fuel tank with high barrier property)

IT Bentonite, uses

Clays, uses

Kaolin, uses

Polyoxyalkylenes, uses

RL: MOA (Modifier or additive use); USES (Uses)

(preparation of nylon/**clay nanocomposite** fuel tank with high barrier property)

IT 123-28-4, Dilauryl thiodipropionate 6683-19-8, Pentaerythritol tetrakis[3-(3,5-di-tert-butyl-4-hydroxyphenyl)propionate] 31570-04-4, Tris(2,4-di-tert-butylphenyl) phosphite

RL: MOA (Modifier or additive use); USES (Uses)

(antioxidant; preparation of nylon/**clay nanocomposite** fuel tank with high barrier property)

IT 60806-36-2, 1,10-Decanediamine-tridecanedioic acid copolymer

RL: MOA (Modifier or additive use); USES (Uses)

(assumed monomers, toughening agent; nylon/**clay nanocomposite** fuel tank with high barrier property, and its preparation method)

IT 9011-52-3D, polymers with caprylolactam-isocyanic acid salt block copolymer 26098-55-5 26796-68-9, 1,13-Tridecanediamine-tridecanedioic acid copolymer 27815-37-8, Nylon, 1010 36497-34-4 50733-20-5, Nylon, 611 55426-12-5 370090-14-5, 1,11-Undecanediamine-undecanedioic acid copolymer 411214-49-8, 1,12-Dodecanediamine-tridecanedioic acid copolymer 496803-25-9 716326-30-6

RL: MOA (Modifier or additive use); USES (Uses)
 (assumed monomers, toughening agent; preparation of nylon/clay
nanocomposite fuel tank with high barrier property)

IT 111-87-5, 1-Octanol, uses 36653-82-4, Cetyl alcohol
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (defoamer; preparation of nylon/clay **nanocomposite** fuel
 tank with high barrier property)

IT 9003-11-6, Ethylene oxide-propylene oxide
copolymer 25322-69-4, Polypropylene glycol
 RL: MOA (Modifier or additive use); USES (Uses)
 (defoamer; preparation of nylon/clay **nanocomposite** fuel
 tank with high barrier property)

IT 119-61-9, Benzophenone, uses 620-81-5, Oxanilide
 RL: MOA (Modifier or additive use); USES (Uses)
 (light stabilizer; preparation of nylon/clay **nanocomposite**
 fuel tank with high barrier property)

IT 13983-17-0, Wollastonite
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (**nanocomposite**; preparation of nylon/clay
nanocomposite fuel tank with high barrier property)

IT 101-68-8, Diphenylmethane diisocyanate 102-09-0, Diphenyl carbonate
 822-06-0, HDI 1310-73-2, Sodium hydroxide, uses 1888-91-1,
 Acetylcaprolactam 2123-24-2, Caprolactam sodium salt 9016-87-9,
 Polymeric MDI 25656-78-4, Triphenylmethane triisocyanate 26471-62-5,
 Toluene diisocyanate
 RL: CAT (Catalyst use); USES (Uses)
 (preparation of nylon/clay **nanocomposite** fuel tank with
 high barrier property)

IT 25038-54-4P, ε-Caprolactam homopolymer, uses
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM
 (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (preparation of nylon/clay **nanocomposite** fuel tank with
 high barrier property)

IT 12174-11-7, Attapulgite 12174-40-2, Rectorite
 RL: MOA (Modifier or additive use); USES (Uses)
 (preparation of nylon/clay **nanocomposite** fuel tank with
 high barrier property)

IT 9008-66-6, Nylon, 610 24936-74-1, Nylon, 612 24937-16-4, Nylon, 12
 25035-03-4, Nylon, 9 25035-04-5, Nylon, 11 25038-74-8 25587-80-8
 25748-72-5, Nylon, 9 26796-70-3 26970-31-0, Nylon, 10 28774-87-0,
 Nylon, 1010 36348-71-7, Nylon, 1212 50732-66-6, Nylon, 611
 51345-09-6, Nylon, 910 55426-60-3, Nylon, 1012 60806-42-0 69662-05-1
 370090-16-7, 1,11-Undecanediamine-undecanedioic acid copolymer, sru
 716326-31-7
 RL: MOA (Modifier or additive use); USES (Uses)
 (toughening agent; preparation of nylon/clay **nanocomposite**
 fuel tank with high barrier property)

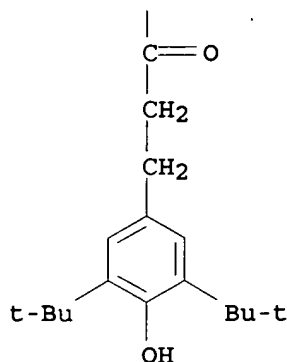
IT 6683-19-8, Pentaerythritol tetrakis[3-(3,5-di-tert-butyl-4-
 hydroxyphenyl)propionate]
 RL: MOA (Modifier or additive use); USES (Uses)
 (antioxidant; preparation of nylon/clay **nanocomposite**
 fuel tank with high barrier property)

RN 6683-19-8 HCAPLUS
 CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-
 oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

[illegible]

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PAGE 2-A



IT 12174-40-2, Rectorite

RL: MOA (Modifier or additive use); USES (Uses)
 (preparation of nylon/clay nanocomposite fuel tank with
 high barrier property)

RN 12174-40-2 HCAPLUS

CN Sodium-rectorite (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L32 ANSWER 5 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:393686 HCAPLUS

DN 145:8996

TI Flame-retardant novolac epoxy resin/organomontmorillonite
 nanocomposite masterbatch, its preparation and application

IN Zeng, Xingrong; Li, Tian; Zhang, Yuanjiang; Liu, Bo; Xu, Zhongying

PA South China University of Technology, Peop. Rep. China.

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1760264	A	20060419	CN 2005-10100155	20051010
PRAI	CN 2005-10100155		20051010		

AB The title preparation method comprises (by weight parts) mixing Na-
 montmorillonite modified by long-chain alkyl ammonium salt 1-20,
 novolac epoxy resin 80-100, and silane coupling agent 0.1-2 at
 60-80°C for 1-6 h. The application method comprises (by weight parts)
 mixing the masterbatch 5-30 with organic phosphate (such as tri-Ph phosphate)
 5-10 to give a flame-retardant composition; milling polypropylene or
 acrylonitrile-butadiene-styrene copolymer 90-60, antioxidant 0.002 and the
 flame-retardant composition at 160-170°C; and sheeting.

CC 37-6 (Plastics Manufacture and Processing)

ST flame retardant novolac epoxy resin montmorillonite

IT Silanes

RL: MOA (Modifier or additive use); USES (Uses)
 (coupling agent; preparation and application of flame-retardant novolac
 epoxy resin/organic montmorillonite nanocomposite
 masterbatch)

IT Phenolic resins, uses

RL: MOA (Modifier or additive use); USES (Uses)
 (epoxy, novolak; preparation and application of flame-retardant novolac

- epoxy resin/organic montmorillonite nanocomposite masterbatch)
- IT Quaternary ammonium compounds, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (montmorillonite modified with; preparation and application of flame-retardant novolac epoxy resin/organic montmorillonite nanocomposite masterbatch)
- IT Epoxy resins, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (phenolic, novolak; preparation and application of flame-retardant novolac epoxy resin/organic montmorillonite nanocomposite masterbatch)
- IT Antioxidants
 Coupling agents
 Fire-resistant materials
 Fireproofing agents
 Nanocomposites
 (preparation and application of flame-retardant novolac epoxy resin/organic montmorillonite nanocomposite masterbatch)
- IT 78-40-0, Triethyl phosphate 101-02-0, Triphenyl phosphite 112-02-7D, Hexadecyltrimethylammonium chloride, ion exchanged with montmorillonite 112-03-8D, Stearyltrimethylammonium chloride, ion exchanged with montmorillonite 115-86-6, Triphenyl phosphate 139-07-1D, Lauryldimethylbenzylammonium chloride, ion exchanged with montmorillonite 919-30-2, KH550 1318-93-0D, Montmorillonite, ammonium salt modified 2530-83-8, KH560 2530-85-0, KH570
 RL: MOA (Modifier or additive use); USES (Uses)
 (preparation and application of flame-retardant novolac epoxy resin/organic montmorillonite nanocomposite masterbatch)
- IT 9003-07-0, Polypropylene 9003-56-9, Acrylonitrile-butadiene-styrene copolymer
 RL: POF (Polymer in formulation); USES (Uses)
 (preparation and application of flame-retardant novolac epoxy resin/organic montmorillonite nanocomposite masterbatch)
- IT 1318-93-0D, Montmorillonite, ammonium salt modified
 RL: MOA (Modifier or additive use); USES (Uses)
 (preparation and application of flame-retardant novolac epoxy resin/organic montmorillonite nanocomposite masterbatch)
- RN 1318-93-0 HCAPLUS
- CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

- IT 9003-07-0, Polypropylene
 RL: POF (Polymer in formulation); USES (Uses)
 (preparation and application of flame-retardant novolac epoxy resin/organic montmorillonite nanocomposite masterbatch)
- RN 9003-07-0 HCAPLUS
- CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



L32 ANSWER 6 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2006:353695 HCAPLUS

DN 145:63971

TI Manufacture of halogen-free, flame retardant, radiation-cured electric cables

IN Zhou, Heping; Wang, Zhiyong; Xiao, Yanghua; Xiao, Bingdun

PA Shenzhen Woer Heat-Shrinkable Material Co., Ltd., Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 13 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1758385	A	20060412	CN 2005-10119742	20051103
PRAI	CN 2005-10119742		20051103		

AB A halogen-free, flame retardant, radiation-cured elec. cable is manufactured from (by weight percentage) **polyethylene** or **ethylene** -vinyl acetate **copolymer** 36-67, phosphoric acid derivative or **phenolic** resin-encapsulated red phosphorus and/or zinc borate 0-16, **aluminum hydroxide** or magnesium hydroxide 13-55, nanometer transition metal oxide 1-8, coupling agent 0.05-1, low mol. weight polymer 2-16, and organic solvent 0-1. The wire is manufactured by the following

steps: (1) polymerizing the monomer of the low mol. weight polymer in the presence

of transition metal oxide, (2) mixing with **aluminum hydroxide** or magnesium hydroxide treated by coupling agent, and other components, and (3) extruding, cooling, granulating, combining with metal core wire by extrusion, and crosslinking by radiation.

CC 38-3 (Plastics Fabrication and Uses)

ST flame retardant **PE** EVA elec cable

IT Polyphosphoric acids

RL: TEM (Technical or engineered material use); USES (Uses)
(ammonium salts; manufacture of flame retardant elec. cable)

IT Electric cables

Elongation at break

Fire-resistant materials

Nanocomposites

Nanoparticles

Tensile strength

(manufacture of flame retardant elec. cable)

IT **Phenolic** resins, uses

RL: **MOA (Modifier or additive use)**; USES (Uses)
(manufacture of flame retardant elec. cable)

IT Actinide oxides

RL: TEM (Technical or engineered material use); USES (Uses)
(manufacture of flame retardant elec. cable)

IT Rare earth oxides

RL: TEM (Technical or engineered material use); USES (Uses)
(manufacture of flame retardant elec. cable)

IT 57-11-4, Stearic acid, uses 112-80-1, Oleic acid, uses 112-92-5, Octadecanol 1067-53-4 2530-85-0, γ -Methacryloxypropyltrimethoxysilane 36653-82-4, Cetanol

RL: **MOA (Modifier or additive use)**; USES (Uses)
(coupling agent; manufacture of flame retardant elec. cable)

IT 94-36-0, Dibenzoyl peroxide, uses 614-45-9, tert-Butyl peroxybenzoate 3006-82-4, tert-Butyl peroxy-2-ethylhexanoate

RL: CAT (Catalyst use); USES (Uses)

- (manufacture of flame retardant elec. cable)
- IT 9003-20-7P, Polyvinyl acetate 9003-63-8P, Poly(n-butyl methacrylate) 28503-39-1P, Butyl methacrylate-vinyl acetate copolymer
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
- (manufacture of flame retardant elec. cable)
- IT 9002-88-4, Polyethylene 24937-78-8, Ethylene-vinyl acetate copolymer
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
- (manufacture of flame retardant elec. cable)
- IT 1309-42-8, Magnesium hydroxide 1313-27-5, Molybdenum oxide, uses 1332-07-6, Zinc borate 21645-51-2, Aluminum hydroxide, uses 41583-09-9, Melamine phosphate 52502-92-8
RL: TEM (Technical or engineered material use); USES (Uses)
- (manufacture of flame retardant elec. cable)
- IT 7723-14-0, Red phosphorus, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(red, phenolic resin coated; manufacture of flame retardant elec. cable)
- L32 ANSWER 7 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2006:43011 HCAPLUS
DN 144:275522
TI Preparation and characterization of **nanocomposites** based on thermoplastic elastomers from rubber-plastic blends
AU Maiti, Madhuchhanda; Bandyopadhyay, Abhijit; Bhowmick, Anil K.
CS Rubber Technology Center, Indian Institute of Technology, Kharagpur, 721302, India
SO Journal of Applied Polymer Science (2006), 99(4), 1645-1656
CODEN: JAPNAB; ISSN: 0021-8995
PB John Wiley & Sons, Inc.
DT Journal
LA English
AB In the present work, thermoplastic elastomer-clay **nanocomposites** based on different rubber-plastic blends from **ethylene-octene copolymer** [Engage] - **polypropylene** and brominated poly(isobutylene-co-para-Me styrene)-nylon 6 were prepared by melt blending. Hexadecyltrimethylammonium bromide and octadecyl amine-modified sodium **montmorillonite** were used as organo-clays. The **nanocomposites** were prepared by adding the nano **clay** sep. into the rubber and plastic phases. The X-ray diffraction peaks observed in the range of 3-10° for the modified **clays** disappeared in the thermoplastic elastomeric **nanocomposites**. Exfoliation and intercalation of the **clays** were shown in the range of 20-30 nm in the particular phase where the **clay** was added. Excellent improvement in mech. properties like tensile strength, elongation at break, and modulus was observed on incorporation of the nano **clays** in the rubber phase of **nanocomposites**. When the nano **clay** was added to the plastic phase, the mech. reinforcement is comparatively poorer due to partial destruction of the crystallinity.
- CC 39-9 (Synthetic Elastomers and Natural Rubber)
Section cross-reference(s): 37
ST elastomer blend **montmorillonite clay**
nanocomposite stress strain storage modulus
IT Vulcanization
(dynamic; **nanocomposites** based on rubber-plastic blends)
IT Polyolefin rubber

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (ethylene-octene; **nanocomposites** based on rubber-plastic blends)

IT Synthetic rubber, properties
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (isobutylene-methylstyrene, brominated, BIMS 7745;
nanocomposites based on rubber-plastic blends)

IT Clays, preparation
 RL: MOA (Modifier or additive use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
 (montmorillonitic; **nanocomposites** based on rubber-plastic blends)

IT Elongation at break
 Hardness (mechanical)
Nanocomposites
 Particle size
 Polymer morphology
 Storage modulus
 Stress-strain relationship
 Tensile strength
 Young's modulus
 (**nanocomposites** based on rubber-plastic blends)

IT Polyamides, properties
 Polymer blends
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (**nanocomposites** based on rubber-plastic blends)

IT Phenolic resins, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (novolak, curative for brominated isobutylene-methylstyrene rubber;
nanocomposites based on rubber-plastic blends)

IT Complex modulus
 (tan δ ; **nanocomposites** based on rubber-plastic blends)

IT 57-09-0, Hexadecyltrimethylammonium bromide 124-30-1, Octadecylamine
 RL: MOA (Modifier or additive use); USES (Uses)
 (clay modifier; **nanocomposites** based on rubber-plastic blends)

IT 1318-93-0D, Montmorillonite, sodium exchanged
 RL: MOA (Modifier or additive use); USES (Uses)
 (filler; **nanocomposites** based on rubber-plastic blends)

IT 9003-07-0, Polypropylene 25038-54-4, Ultramid B3, properties
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (**nanocomposites** based on rubber-plastic blends)

IT 63559-60-4D, Isobutylene-methylstyrene copolymer, brominated 70800-37-2, Ethylene-octene copolymer
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (rubber; **nanocomposites** based on rubber-plastic blends)

IT 1318-93-0D, Montmorillonite, sodium exchanged
 RL: MOA (Modifier or additive use); USES (Uses)
 (filler; **nanocomposites** based on rubber-plastic blends)

RN 1318-93-0 HCAPLUS
 CN Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67)(Ca₀-1Na₀-1)0.33Si₄(OH)2O₁₀.xH₂O)
 (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 9003-07-0, Polypropylene
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (**nanocomposites** based on rubber-plastic blends)

RN 9003-07-0 HCAPLUS
 CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6

 $\text{H}_3\text{C}-\text{CH}=\text{CH}_2$

RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 8 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:1230744 HCAPLUS

DN 143:478714

TI Abrasion- and impact-resistant high-strength **nanocomposites** for pipes and preparation method

IN Chang, Yaohui

PA Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 6 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

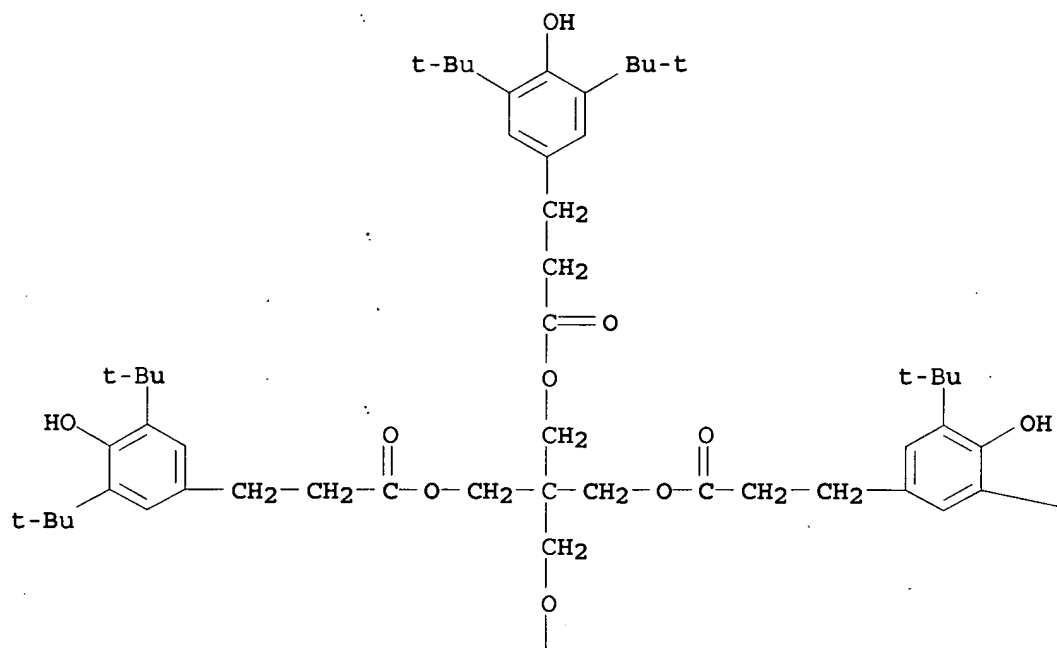
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1569941	A	20050126	CN 2003-150371	20030725
PRAI	CN 2003-150371		20030725		
AB	The nanocomposites are manufactured from a composition containing medium-high-mol.-weight polyethylene (mol. weight $\geq 1,500,000$) 100, nanosized intercalated montmorillonite 1-50, and antioxidants 0.2-0.5 part.				
IC	ICM C08L023-06				
	ICS C08K003-34; B29D023-00				
CC	37-6 (Plastics Manufacture and Processing)				
	Section cross-reference(s): 38				
ST	nanosized intercalated montmorillonite polyethylene nanocomposite ; abrasion impact resistant polyethylene pipe				
IT	Antioxidants				
	Nanocomposites				
	Pipes and Tubes				
	(abrasion- and impact-resistant high-strength polyethylene nanocomposites for pipes)				
IT	128-37-0, Antioxidant 264, uses 2082-79-3, Irganox 1076 6683-19-8, Irganox 1010 125052-71-3, CA (antioxidant)				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(abrasion- and impact-resistant high-strength polyethylene nanocomposites for pipes)				
IT	9002-88-4, Polyethylene				
	RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)				
	(abrasion- and impact-resistant high-strength polyethylene nanocomposites for pipes)				
IT	1318-93-0, Montmorillonite , uses				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(intercalated, nanosized; abrasion- and impact-resistant high-strength polyethylene nanocomposites for pipes)				
IT	6683-19-8, Irganox 1010				

RL: MOA (Modifier or additive use); USES (Uses)
 (abrasion- and impact-resistant high-strength polyethylene
 nanocomposites for pipes)

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-
 oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

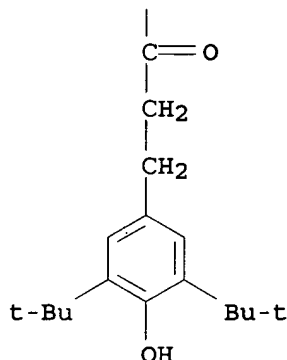
PAGE 1-A



PAGE 1-B

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PAGE 2-A



IT 1318-93-0, **Montmorillonite**, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (intercalated, nanosized; abrasion- and impact-resistant high-strength
polyethylene nanocomposites for pipes)
 RN 1318-93-0 HCAPLUS
 CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O)
 (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L32 ANSWER 9 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2005:1204695 HCAPLUS
 DN 143:441343
 TI **Ethylene-vinyl acetate copolymer-modified**
montmorillonite nanocomposites and their preparation
 IN Wu, Shishan; Shen, Jian
 PA Nanjing University, Peop. Rep. China
 SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp.
 CODEN: CNXXEV
 DT Patent
 LA Chinese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1583866	A	20050223	CN 2004-10041281	20040615
PRAI	CN 2004-10041281		20040615		
AB	The nanocomposites , having improved tensile strength, tear strength, and Young's modulus, are prepared by mixing 93-98% ethylene-vinyl acetate copolymer (EVA), 2-7% modified montmorillonite , and 0.1-0.4% (based on EVA) antioxidants at 105-130°.				
IC	ICM C08L023-08				
	ICS C08K003-34				
CC	37-6 (Plastics Manufacture and Processing)				
ST	ethylene vinyl acetate copolymer modified montmorillonite nanocomposite				
IT	Antioxidants Nanocomposites (EVA-modified montmorillonite nanocomposites with improved tensile strength, tear strength, and Young's modulus)				
IT	24937-78-8, EVA RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or				

engineered material use); USES (Uses)

(EVA-modified **montmorillonite nanocomposites** with improved tensile strength, tear strength, and Young's modulus)

IT 6683-19-8, Irganox 1010 31570-04-4, Irganox 168

RL: MOA (Modifier or additive use); USES (Uses)

(antioxidants; EVA-modified **montmorillonite nanocomposites** with improved tensile strength, tear strength, and Young's modulus)

IT 57-09-0, Hexadecyltrimethylammonium bromide 124-30-1, Octadecylamine

RL: MOA (Modifier or additive use); USES (Uses)

(**montmorillonite** modified with; EVA-modified **montmorillonite nanocomposites** with improved tensile strength, tear strength, and Young's modulus)

IT 1318-93-0, **Montmorillonite**, uses

RL: MOA (Modifier or additive use); USES (Uses)

(octadecylamine-modified; EVA-modified **montmorillonite nanocomposites** with improved tensile strength, tear strength, and Young's modulus)

IT 6683-19-8, Irganox 1010

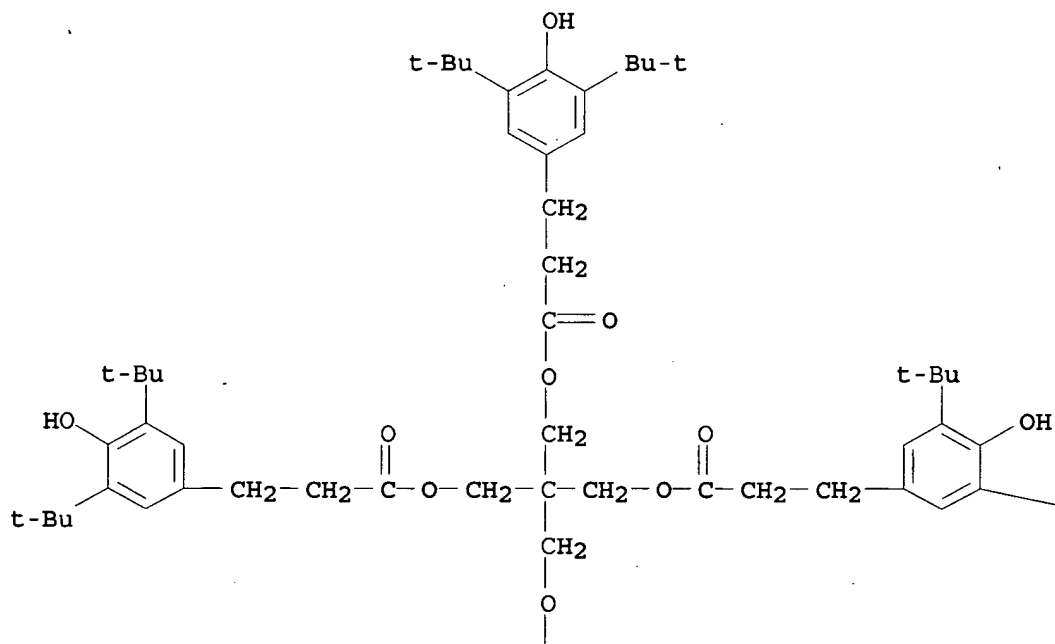
RL: MOA (Modifier or additive use); USES (Uses)

(antioxidants; EVA-modified **montmorillonite nanocomposites** with improved tensile strength, tear strength, and Young's modulus)

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

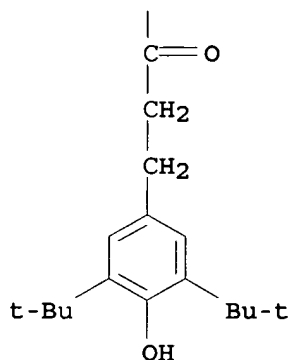
PAGE 1-A



PAGE 1-B

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PAGE 2-A



IT 1318-93-0, **Montmorillonite**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(octadecylamine-modified; EVA-modified **montmorillonite nanocomposites** with improved tensile strength, tear strength, and Young's modulus)
RN 1318-93-0 HCAPLUS
CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L32 ANSWER 10 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:1004382 HCAPLUS

DN 143:287242

TI **Nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay

IN Gong, Caiguo; Oshinski, Alan J.; Poole, Beverly J.; Ball, Jerry W.; Sykes, Thomas W.

PA USA

application

SO U.S. Pat. Appl. Publ., 28 pp.

CODEN: USXXCO

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2005203235	A1	20050915	US 2004-800455	20040315
PRAI	US 2004-800455		20040315		

OS MARPAT 143:287242

AB This invention relates to **nanocomposites** comprising organo-**clay** and at least one stabilization functionalized thermoplastic polyolefin. Preferably the stabilization functionalized thermoplastic polyolefin is represented by the formula: T-(R1G)_n wherein T represents the thermoplastic polyolefin, each R1 is a bridging group, preferably independently selected from the group consisting of C1 to C20 aliphatic; C1 to C20 aromatic; substituted C1 to C20 aliphatic; substituted C1 to C20 aromatic; C1 to C20 aliphatic ester; C1 to C20 aliphatic ether; C1 to C20 aliphatic amide; C1 to C20 aliphatic imide; n is the number of stabilization functional/bridging groups bound to T and may be from 1-300; and G is selected from one or more of **phenols**, ketones, hindered amines, substituted **phenols**, substituted ketones, substituted hindered amines, or combinations thereof.

IC ICM C08K003-34

INCL 524445000

CC 37-6 (Plastics Manufacture and Processing)

ST **nanocomposite** stabilizer polyolefin organoclay

IT **Mica**-group minerals, uses

RL: TEM (Technical or engineered material use); USES (Uses) (fluorine-rich; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT Amines, uses

RL: MOA (Modifier or additive use); USES (Uses) (hindered, stabilizers; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT **Nanocomposites**

(**nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT Ethylene-propylene rubber

RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (**nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT **Clays**, uses

RL: TEM (Technical or engineered material use); USES (Uses) (organo-; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT Appliances

(part; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT Automobiles

(parts; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT Ketones, uses

Phenols, uses

RL: MOA (Modifier or additive use); USES (Uses)

(stabilizers; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT Polyolefins
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (thermoplastic; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT 9010-79-1
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (ethylene-propylene rubber; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT 2835-96-3, 4-(2-Aminomethyl)phenol 6683-19-8,
 IR 1010
 RL: MOA (Modifier or additive use); USES (Uses)
 (**nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT 9003-07-0, Polypropylene 196522-45-9, Polybond
 3200 307975-23-1, Epolene G 3015
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (**nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT 1318-00-9, Vermiculite 1318-93-0,
 Montmorillonite, uses 1318-93-0D,
 Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67)(CaO-1NaO-1)0.33Si₄(OH)2O₁₀.xH₂O), calcium-exchanged 1318-93-0D,
 Montmorillonite, magnesium-exchanged 1318-93-0D,
 Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67)(CaO-1NaO-1)0.33Si₄(OH)2O₁₀.xH₂O), sodium-exchanged 1319-41-1,
 Saponite 1344-28-1, Aluminum oxide,
 uses 12068-50-7, Halloysite 12172-85-9,
 Beidellite 12173-47-6, Hectorite
 12173-60-3, Illite 12174-06-0, Nontronite
 12174-40-2, Rectorite 12285-88-0, Magadiite
 12285-95-9, Kenyaite 12286-87-2,
 Volkonskoite 12304-65-3, Hydrotalcite
 12417-86-6, Stevensite 12424-32-7,
 Sauconite 12510-56-4, Tarasovite
 53320-86-8, Laponite 56997-00-3,
 Swinefordite 252254-69-6, Cloisite 6A
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

IT 9010-79-1
 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
 (ethylene-propylene rubber; **nanocomposite** comprising stabilization functionalized thermoplastic polyolefins and organoclay)

RN 9010-79-1 HCAPLUS

CN 1-Propene, polymer with ethene (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



CM 2

CRN 74-85-1

CMF C2 H4

 $\text{H}_2\text{C}=\text{CH}_2$

IT 2835-96-3, 4-(2-Aminomethyl)phenol 6683-19-8,

IR 1010

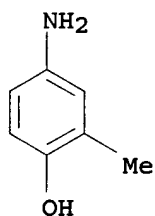
RL: MOA (Modifier or additive use); USES (Uses)

(nanocomposite comprising stabilization

functionalized thermoplastic polyolefins and organoclay)

RN 2835-96-3 HCAPLUS

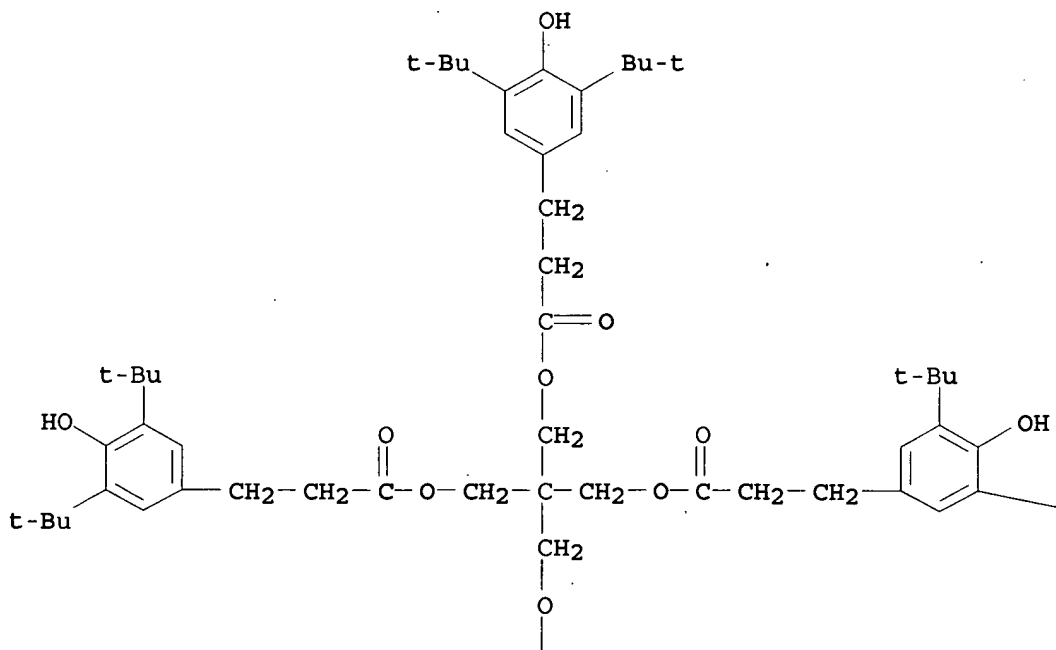
CN Phenol, 4-amino-2-methyl- (CA INDEX NAME)



RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

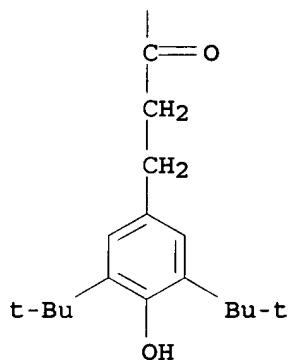
PAGE 1-A



PAGE 1-B

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PAGE 2-A



IT 9003-07-0, Polypropylene 196522-45-9, Polybond
 3200 307975-23-1, Epolene G 3015
 RL: POF (Polymer in formulation); TEM (Technical or engineered material
 use); USES (Uses)
 (nanocomposite comprising stabilization functionalized
 thermoplastic polyolefins and organoclay)

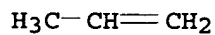
RN 9003-07-0 HCAPLUS

CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



RN 196522-45-9 HCAPLUS
 CN Polybond 3200 (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 307975-23-1 HCAPLUS
 CN Epolene G 3015 (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 1318-00-9, Vermiculite 1318-93-0,
 Montmorillonite, uses 1318-93-0D,
 Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67)(Ca₀-1Na₀-
 1)0.33Si₄(OH)2O₁₀.xH₂O), calcium-exchanged 1319-41-1,
 Saponite 1344-28-1, Aluminum oxide,
 uses 12068-50-7, Halloysite 12172-85-9,
 Beidellite 12173-47-6, Hectorite
 12173-60-3, Illite 12174-06-0, Nontronite
 12174-40-2, Rectorite 12285-88-0, Magadiite
 12285-95-9, Kenyaite 12286-87-2,
 Volkonskoite 12304-65-3, Hydrotalcite
 12417-86-6, Stevensite 12424-32-7,
 Sauconite 12510-56-4, Tarasovite
 53320-86-8, Laponite 56997-00-3,
 Swinefordite 252254-69-6, Cloisite 6A
 RL: TEM (Technical or engineered material use); USES (Uses)
 (nanocomposite comprising stabilization functionalized
 thermoplastic polyolefins and organoclay)

RN 1318-00-9 HCAPLUS
 CN Vermiculite (Mg_{0.33}[Mg₂-3(Al₀-1Fe₀-1)0-1](Si_{2.33}-3.33Al_{0.67}-
 1.67)(OH)2O₁₀.4H₂O) (CA INDEX NAME)

CM 1

CRN 122872-60-0
 CMF Al . Fe . H O . Mg . O3 Si . O
 CCI TIS

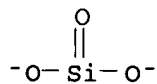
CM 2

CRN 17778-80-2
 CMF O

O

CM 3

CRN 15593-90-5
 CMF O3 Si



CM 4

CRN 14280-30-9
CMF H O

OH⁻

CM 5

CRN 7439-95-4
CMF Mg

Mg

CM 6

CRN 7439-89-6
CMF Fe

Fe

CM 7

CRN 7429-90-5
CMF Al

Al

RN 1318-93-0 HCAPLUS
CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1318-93-0 HCAPLUS
CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

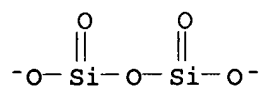
RN 1319-41-1 HCAPLUS
CN Saponite ((Mg0.5-1Fe0-0.5)3(Si3.67Al0.33)(Na0-0.33Ca0-0.17)(OH)2O10.4H2O)
(9CI) (CA INDEX NAME)

CM 1

CRN 135663-11-5
CMF Al . Ca . Fe . H O . Mg . Na . O5 Si2 . O
CCI TIS

CM 2

CRN 20328-07-8
CMF 05 Si2



CM 3

CRN 17778-80-2
CMF O

O

CM 4

CRN 14280-30-9
CMF H O

OH⁻

CM 5

CRN 7440-70-2
CMF Ca

Ca

CM 6

CRN 7440-23-5
CMF Na

Na

CM 7

CRN 7439-95-4
CMF Mg

Mg

CM 8

CRN 7439-89-6

CMF Fe

Fe

CM 9

CRN 7429-90-5

CMF Al

Al

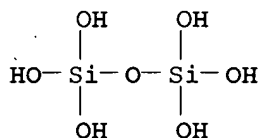
RN 1344-28-1 HCAPLUS

CN Aluminum oxide (Al₂O₃) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12068-50-7 HCAPLUS

CN Halloysite (Al₂(Si₂O₇).2H₂O) (CA INDEX NAME)



●2 Al

●2 H₂O

RN 12172-85-9 HCAPLUS

CN Beidellite (Al₂(Si_{3.67}Al_{0.33})(Na_{0-0.33}Ca_{0-0.17})(OH)₂O₁₀.xH₂O) (CA INDEX NAME)

CM 1

CRN 111059-65-5

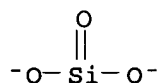
CMF Al . Ca . Na . O₃ Si

CCI TIS

CM 2

CRN 15593-90-5

CMF O₃ Si



CM 3

CRN 7440-70-2

CMF Ca

Ca

CM 4

CRN 7440-23-5

CMF Na

Na

CM 5

CRN 7429-90-5

CMF Al

Al

RN 12173-47-6 HCAPLUS

CN Hectorite ((Mg_{2.67}Li_{0.33})Si₄Na_{0.33}[F_{0.5-1}(OH)_{0-0.5}]2O₁₀) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12173-60-3 HCAPLUS

CN Illite ([Al_{1.75}(Fe₀₋₁Mg₀₋₁)_{0.25}]K_{0.75}(Si_{3.5}Al_{0.5})[(OH)_{0.5-1}F_{0-0.5}]2O₁₀) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O5Si2	1.75	20328-07-8
O	1.25	17778-80-2
F	0 - 1	14762-94-8
HO	1 - 2	14280-30-9
K	0.75	7440-09-7
Mg	0 - 0.25	7439-95-4
Fe	0 - 0.25	7439-89-6
Al	2.25	7429-90-5

RN 12174-06-0 HCAPLUS

CN Nontronite (Fe₂(Si_{3.67}Al_{0.33})Na_{0.33}(OH)2O₁₀.xH₂O) (CA INDEX NAME)

CM 1

CRN 111186-70-0

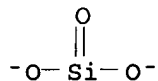
CMF Al . Fe . Na . O3 Si

CCI TIS

CM 2

CRN 15593-90-5

CMF O3 Si



CM 3

CRN 7440-23-5

CMF Na

Na

CM 4

CRN 7439-89-6

CMF Fe

Fe

CM 5

CRN 7429-90-5

CMF Al

Al

RN 12174-40-2 HCAPLUS

CN Sodium-rectorite (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12285-88-0 HCAPLUS

CN Magadiite (Si7Na(OH)O14.5H2O) (CA INDEX NAME)

CM 1

CRN 111139-73-2

CMF H O . Na . O . Si

CCI TIS

CM 2

CRN 17778-80-2

CMF O

O

CM 3

CRN 14280-30-9

CMF H O

OH⁻

CM 4

CRN 7440-23-5

CMF Na

Na

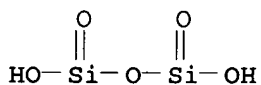
CM 5

CRN 7440-21-3

CMF Si

Si

RN 12285-95-9 HCAPLUS

CN Kenyaite (Na₂H₂₀(Si₂O₅)₁₁) (CA INDEX NAME)

●2/11 Na

RN 12286-87-2 HCAPLUS

CN Volkonskoite (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12304-65-3 HCAPLUS

CN Hydrotalcite (Mg₆(CO₃)[Al(OH)₆]₂(OH)₄·4H₂O) (9CI) (CA INDEX NAME)

CM 1

CRN 11097-59-9

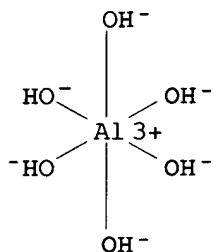
CMF C O3 . 2 Al H6 O6 . 4 H O . 6 Mg

CM 2

CRN 18893-33-9

CMF Al H6 O6

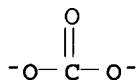
CCI CCS



CM 3

CRN 3812-32-6

CMF C O3



RN 12417-86-6 HCAPLUS

CN Stevensite ((Ca0.33-0.5Na0-0.33)0.33Mg3(Si3.67Al0.33)(OH)2O10) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O5Si2	1.84	20328-07-8
O	0.8	17778-80-2
HO	2	14280-30-9
Ca	0.11 - 0.17	7440-70-2
Na	0 - 0.11	7440-23-5
Mg	3	7439-95-4
Al	0.33	7429-90-5

RN 12424-32-7 HCAPLUS

CN Sauconite (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12510-56-4 HCAPLUS

CN Tarasovite (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 53320-86-8 HCAPLUS

CN Silicic acid, lithium magnesium sodium salt (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 56997-00-3 HCAPLUS

CN Swinefordite (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 252254-69-6 HCAPLUS

CN Cloisite 6A (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L32 ANSWER 11 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:625713 HCAPLUS

DN 143:287090

TI Photo-Oxidation of sPP/Organoclay **Nanocomposites**

AU Chmela, Stefan; Kleinova, Angela; Fiedlerova, Agnesa; Borsig, Eberhard; Kaempfer, Dirk; Thomann, Ralf; Muelhaupt, Rolf

CS Polymer Institute, Slovak Academy of Sciences, Centrum of Excellence CEDEBIPO, Bratislava, Slovakia

SO Journal of Macromolecular Science, Part A: Pure and Applied Chemistry (2005), A42(7), 821-829

CODEN: JSPCE6; ISSN: 1060-1325

PB Taylor & Francis, Inc.

DT Journal

LA English

AB Photo-oxidation of syndiotactic **polypropylene-sPP/organoclay**

nanocomposites was performed. **Nanocomposites** were prepared in situ by melt compounding of sPP, compatibilizer (iPP grafted with maleic anhydride-iPP-g-MAN) and organoclay filler ME C18 (modified with octadecyl ammonium chains in intergalleries of layered silicate, of which silicate layers (about 1 nm thin) were exfoliated). The influence of ME C18 nanoparticles alone (in content region 1 to 15 wt%) and together with compatibilizer iPP-g-MAN on the photostability of the sPP **nanocomposite** was studied. It was found that the silicate ME C18 nanoparticles alone catalyze the photooxidn. and shorten the induction period of photo-oxidation to one fourth (at the content of 5 wt% of ME C18) in comparison with unfilled sPP and the presence of compatibilizer supports the photo-oxidation of sPP **nanocomposite**. The ME C18 nanoparticles decrease the efficiency of UV stabilizers. The rate of photo-oxidation of sPP/**clay nanocomposite** after the induction period is significantly higher than unfilled sPP. The mechanism of photo-oxidation is discussed.

CC 37-5 (Plastics Manufacture and Processing)

ST photooxidn syndiotactic **polypropylene** organoclay **nanocomposite** compatibilizer stabilizer

IT Polymer blend compatibilizers

Stabilizing agents

UV stabilizers

(effect on photo-oxidation of sPP/organoclay **nanocomposites**)

IT Polymer degradation

(oxidative, photochem.; photo-oxidation of sPP/organoclay **nanocomposites**)

IT Carbonyl group

Nanocomposites

(photo-oxidation of sPP/organoclay **nanocomposites**)

IT 287401-18-7, EOD 96-30

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)

(EOD 96-30; photo-oxidation of sPP/organoclay **nanocomposites**)

IT 150104-15-7, Hostaprine HC 5

RL: MOA (Modifier or additive use); USES (Uses)
 (Hostaprim HC 5, compatibilizer; photo-oxidation of spp/organoclay **nanocomposites**)

IT 439917-29-0, Licomont AR 504
 RL: MOA (Modifier or additive use); USES (Uses)
 (Licomont AR 504, compatibilizer; photo-oxidation of spp/organoclay **nanocomposites**)

IT 182636-27-7D, Somasif ME 100, reaction products with octadecylamine
 RL: MOA (Modifier or additive use); USES (Uses)
 (SOMASIF ME 100; photo-oxidation of spp/organoclay **nanocomposites**)

IT 71878-19-8, Chimassorb 944
 RL: MOA (Modifier or additive use); USES (Uses)
 (UV stabilizer; photo-oxidation of spp/organoclay **nanocomposites**)

IT 124-30-1D, 1-Octadecanamine, reaction products with SOMASIF ME 100
 RL: MOA (Modifier or additive use); USES (Uses)
 (photo-oxidation of spp/organoclay **nanocomposites**)

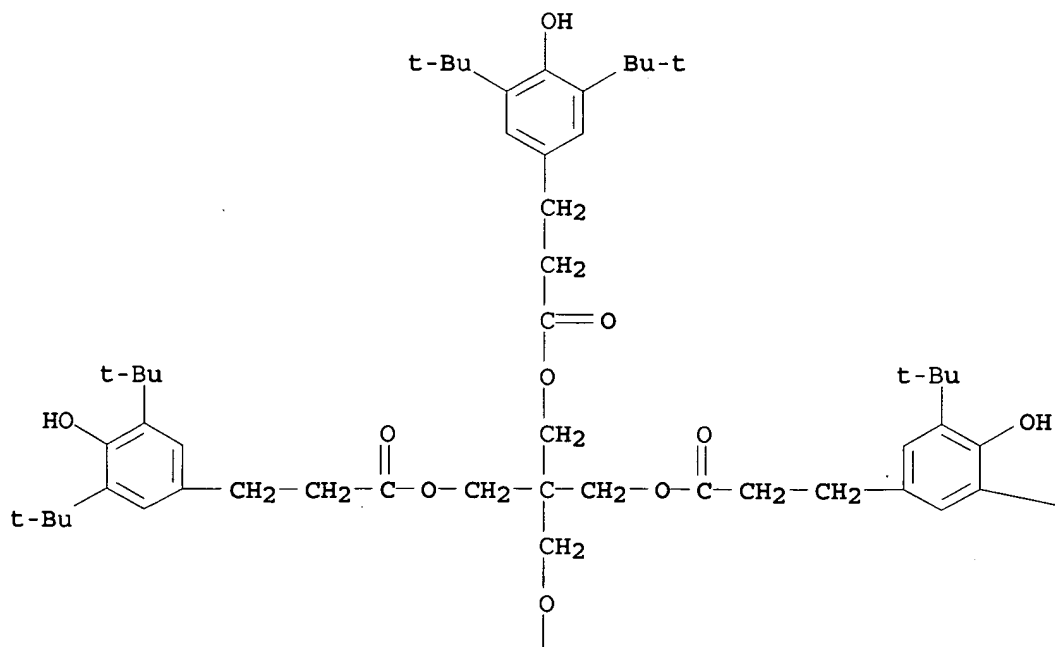
IT 6683-19-8 31570-04-4
 RL: MOA (Modifier or additive use); USES (Uses)
 (stabilizer; photo-oxidation of spp/organoclay **nanocomposites**)

IT 6683-19-8
 RL: MOA (Modifier or additive use); USES (Uses)
 (stabilizer; photo-oxidation of spp/organoclay **nanocomposites**)

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

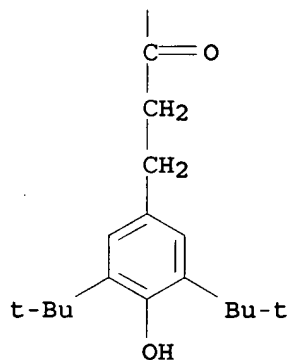
PAGE 1-A



PAGE 1-B

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PAGE 2-A



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 12 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:479889 HCAPLUS

DN 143:154249

TI Preparation of **polyethylene-montmorillonite**
nanocomposite materials

IN Zheng, Qiang

PA Zhejiang University, Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, No pp. given
CODEN: CNXXEV

DT Patent

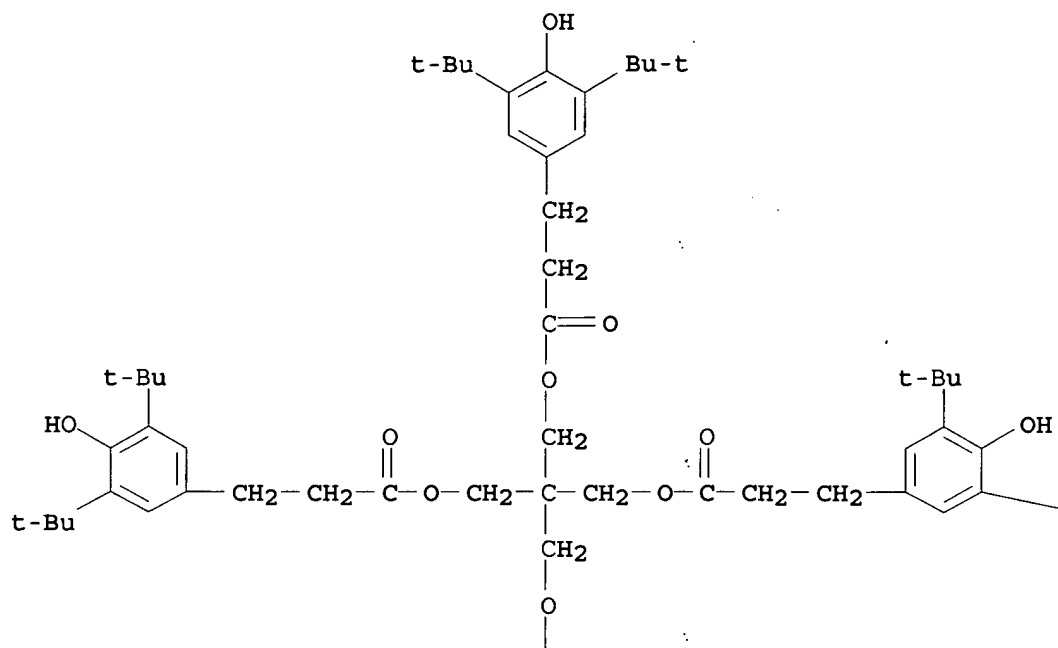
LA Chinese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1523053	A	20040825	CN 2003-150846	20030903
PRAI CN 2003-150846		20030903		

- AB The **nanocomposites** comprise 70-80% vinyl polymer, 10-20% compatibilizer, e.g., vinyl copolymer, 1-10% organic **montmorillonite** and 0.1-0.5% antioxidant and are prepared by steps of: mixing compatibilizer and organic **montmorillonite** by melt-intercalation treatment to obtain premixt., then mixing the premixt. with **polyethylene** and blending by twin screw extruder.
- IC ICM C08L023-06
ICS C08K009-04; B29C047-40
- CC 37-6 (Plastics Manufacture and Processing)
- ST vinyl polymer **montmorillonite nanocomposite** compn
- IT Quaternary ammonium compounds, uses
RL: MOA (Modifier or additive use); USES (Uses)
(bromides, C16-18-alkyl; compns. of vinyl polymer-**montmorillonite nanocomposites**)
- IT Extrusion of plastics and rubbers
Mixing
Nanocomposites
(compns. of vinyl polymer-**montmorillonite nanocomposites**)
- IT **Clays**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**montmorillonitic**, sodium type; compns. of vinyl polymer-**montmorillonite nanocomposites**)
- IT 6683-19-8, Antioxidant 1010 9010-77-9, Acrylic acid-**ethylene copolymer** 24937-78-8, **Ethylene**-vinyl acetate **copolymer** 25053-53-6, **Ethylene**-methacrylic acid **copolymer**
RL: MOA (Modifier or additive use); USES (Uses)
(compns. of vinyl polymer-**montmorillonite nanocomposites**)
- IT 9002-88-4, **Polyethylene**
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)
(low d.; compns. of vinyl polymer-**montmorillonite nanocomposites**)
- IT 6683-19-8, Antioxidant 1010
RL: MOA (Modifier or additive use); USES (Uses)
(compns. of vinyl polymer-**montmorillonite nanocomposites**)
- RN 6683-19-8 HCAPLUS
- CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

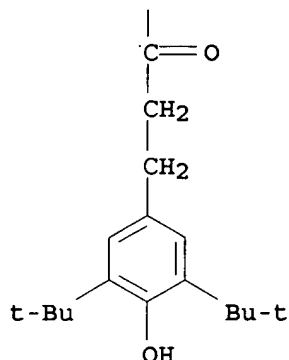
PAGE 1-A



PAGE 1-B

Bu-t

PAGE 2-A



- L32 ANSWER 13 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2005:469605 HCAPLUS
 DN 143:154161
 TI Influence of the composition of **polypropylene/organoclay nanocomposite** fibers on their tensile strength
 AU Mlynarcikova, Zita; Borsig, Eberhard; Legen, Jaroslav; Marcincin, Anton; Alexy, Pavol
 CS Department of Fibres and Textile Chemistry, Faculty of Chemical and Food Technology, Slovak University of Technology in Bratislava, Bratislava, Slovakia
 SO Journal of Macromolecular Science, Pure and Applied Chemistry (2005), A42(5), 543-554
 CODEN: JSPCE6; ISSN: 1060-1325
 PB Taylor & Francis, Inc.
 DT Journal
 LA English
 AB The statistical method "Exptl. Design" was applied to optimization of weight composition of isotactic **polypropylene/organoclay (iPP/organic clay) nanocomposite** fibers from the standpoint of achieving the desired tensile strength at break as one of the significant mech. properties. These properties were studied on fibers prepared from samples of iPP/org.**clay nanocomposites** of differing compns. According to the statistical program, there were thirteen samples prepared containing the organoclay filler, NANOFIL, in the concentration range 0.5-4.9 wt%, and compatibilizer, an iPP grafted with maleic anhydride (iPP-g-MA) concentration of 1 - 5 wt%. The samples were spun, and the obtained fibers underwent measurements of tensile strength at break. Evaluation of the obtained data, led to the establishment of an optimal compatibilizer to filler ratio of 0.16 - 2.76, for which the tensile strength is higher than for unfilled iPP fibers.
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 38, 40
 ST **polypropylene organoclay nanocomposite** fiber spinning
 compatibilizer simulation tensile strength
 IT Molding of plastics and rubbers
 (drawing; **polypropylene/organoclay nanocomposite** fibers)
 IT **Clays**, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (montmorillonitic; **polypropylene/organoclay nanocomposite** fibers)

IT **Nanocomposites**
Polymer blend compatibilizers
Regression analysis
Simulation and Modeling,
(polypropylene/organoclay nanocomposite fibers)

IT **Fibers**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(spinning, nanocomposite fibers; polypropylene/organoclay nanocomposite fibers)

IT **Tensile strength**
(ultimate; polypropylene/organoclay nanocomposite fibers)

IT 25085-53-4, Isotactic **polypropylene**
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(PP-HPF; polypropylene/organoclay nanocomposite fibers)

IT 439917-29-0, Licomont AR 504
RL: MOA (Modifier or additive use); USES (Uses)
(compatibilizer; polypropylene/organoclay nanocomposite fibers)

IT 502618-64-6, Nanofil 15
RL: MOA (Modifier or additive use); USES (Uses)
(filler; polypropylene/organoclay nanocomposite fibers)

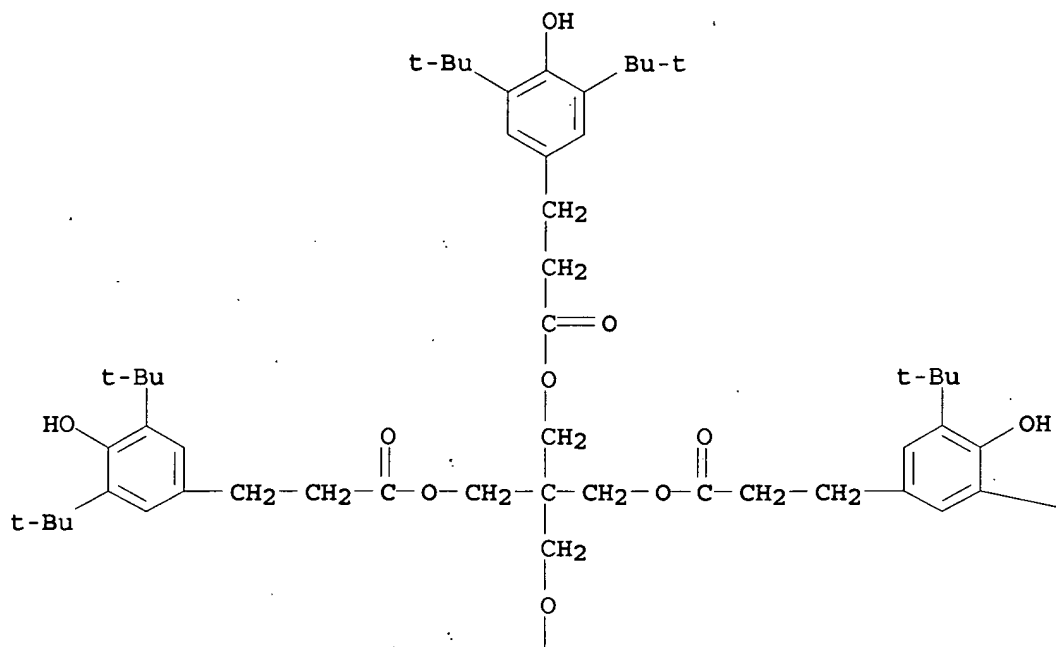
IT 6683-19-8, Irganox 1010 31570-04-4, Irgafos 168
RL: MOA (Modifier or additive use); USES (Uses)
(thermo-oxidation stabilizer; polypropylene/organoclay nanocomposite fibers)

IT 6683-19-8, Irganox 1010
RL: MOA (Modifier or additive use); USES (Uses)
(thermo-oxidation stabilizer; polypropylene/organoclay nanocomposite fibers)

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

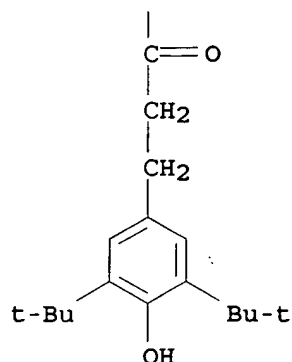
PAGE 1-A



PAGE 1-B

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PAGE 2-A



RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 14 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:362157 HCAPLUS

DN 142:412574

TI Transparent water-resistant polymer compositions with good dispersibility
of layered silicate salts for optical communication

IN Shibayama, Koichi; Yonezawa, Koji

PA Sekisui Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 28 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005113107	A	20050428	JP 2003-392910	20031121
PRAI	JP 2002-338429	A	20021121		
	JP 2003-41619	A	20030219		
	JP 2003-326550	A	20030918		

AB The comps. comprise polymers (e.g., benzocyclobutene-, norbornene-, AND
styrene-based polymers) and 0.1-100 phr layered silicate salts. Thus, a
plate comprising poly(isobornyl acrylate) and
polyoxypropylenemethyldiethylammonium salt-treated **hectorite**
(Lucentite SPN) showed linear expansion coefficient (JIS K 7197) 4.3 +
10-5/°, total light transmittance 88.5%, and refractive index
1.5058.

IC ICM C08L101-00

ICS C08K003-34

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 73, 78

ST transparency optical communication acrylic layered silicate; water
resistance polyisobornyl acrylate layered silicate; dimensional stability
acrylic propoxylated ammonium **hectorite**; dispersibility
polyoxypropylenemethyldiethylammonium treated **hectorite** acrylic

IT Quaternary ammonium compounds, uses

RL: MOA (Modifier or additive use); TEM (Technical or engineered material
use); USES (Uses)

(alkylammonium salts, treating **hectorite** for; transparent
water-resistant polymer comps. with good dispersibility of layered
silicate salts for optical communication)

IT Epoxy resins, uses

- RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (dicyandiamide-crosslinked; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT Butadiene rubber, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (epoxidized, Nisso Epoxin EPB 13, polymers with **phenol-modified** polybutadiene and epoxy resins; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT **Phenolic** resins, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (epoxy; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT Silicates, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses) (layered, salts; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT Epoxy resins, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (**phenolic**; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT **Mica**-group minerals, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses) (swellable; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT **Nanocomposites**
Optical communication
Transparent materials
Water-resistant materials
(transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT Polyvinyl butyrals
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT Fluoropolymers, uses
Polycarbonates, uses
Polyimides, uses
Polyolefins
Polysiloxanes, uses
Polyurethanes, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT 9003-17-2DP, epoxidized
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (butadiene rubber; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)

- IT 12173-47-6, **Hectorite**
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (quaternary ammonium salt-treated; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT 13410-58-7DP, polymers with epoxidized butadiene rubber and **phenol**-modified polybutadiene 13410-58-7DP, polymers with epoxidized butadiene rubber and **phenol**-modified polybutadiene 26283-70-5DP, YX 8000, polymers with epoxidized butadiene rubber and epoxy resins 30323-87-6P, Poly(isobornyl acrylate) 67290-25-9P, Isobornyl acrylate-methyl methacrylate copolymer 205132-45-2DP, **PP** 1000-240, polymers with epoxidized butadiene rubber and epoxy resins 205132-45-2DP, **PP** 1000-240, polymers with epoxidized butadiene rubber and epoxy resin 205132-45-2DP, **PP** 1000-240, polymers with poly(vinyl acetal) 575560-65-5P, Adeka Hardener EH 3636AS-DER 331L-Pheno Tohto YP 55 copolymer
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT 1318-00-9, **Vermiculite** 1318-93-0, **Montmorillonite**, uses 149316-65-4, Lucentite SWN 180616-08-4, Lucentite SPN 202149-45-9, Lucentite STN 658710-59-9, Lucentite STN-A
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- IT 12173-47-6, **Hectorite**
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (quaternary ammonium salt-treated; transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- RN 12173-47-6 HCAPLUS
- CN Hectorite ((Mg_{2.67}Li_{0.33})Si₄Na_{0.33}[F_{0.5}-1(OH)_{0-0.5}]2O₁₀) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

- IT 1318-00-9, **Vermiculite** 1318-93-0, **Montmorillonite**, uses
 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
 (transparent water-resistant polymer compns. with good dispersibility of layered silicate salts for optical communication)
- RN 1318-00-9 HCAPLUS
- CN Vermiculite (Mg_{0.33}[Mg₂-3(Al₀-1Fe₀-1)O₋₁](Si_{2.33}-3.33Al_{0.67}-1.67)(OH)2O₁₀.4H₂O) (CA INDEX NAME)

CM 1

CRN 122872-60-0
 CMF Al . Fe . H O . Mg . O₃ Si . O
 CCI TIS

CM 2

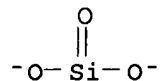
CRN 17778-80-2
 CMF O

O

CM 3

CRN 15593-90-5

CMF O3 Si



CM 4

CRN 14280-30-9

CMF H O

OH⁻

CM 5

CRN 7439-95-4

CMF Mg

Mg

CM 6

CRN 7439-89-6

CMF Fe

Fe

CM 7

CRN 7429-90-5

CMF Al

Al

RN 1318-93-0 HCAPLUS

CN Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67) (Ca₀-1Na₀-1) 0.33Si₄ (OH) 2O₁₀.xH₂O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L32 ANSWER 15 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2005:113295 HCAPLUS

DN 142:355983

TI Photooxidation of **Polypropylene/Montmorillonite Nanocomposites**. 2. Interactions with Antioxidants

AU Morlat-Therias, Sandrine; Mailhot, Benedicte; Gonzalez, David; Gardette, Jean-Luc

CS Laboratoire de Photochimie Moleculaire et Macromoleculaire, UMR CNRS-UBP 6505, Universite Blaise Pascal (Clermont-Ferrand), Aubiere, F-63177, Fr.

SO Chemistry of Materials (2005), 17(5), 1072-1078

CODEN: CMATEX; ISSN: 0897-4756

PB American Chemical Society

DT Journal

LA English

AB The influence of stabilizing additives on the photooxidn. of **polypropylene/montmorillonite (PP/MMt) nanocomposites** exposed to UV light was studied. Two different

stabilizers were used, a **phenolic antioxidant** and a redox antioxidant. A significant reduction in the induction period of oxidation

was observed in the presence of MMt. This is believed to arise from interactions between the additives and the nanoclay. The interactions could involve the adsorption of additives onto the **clay**, the degradation of the alkylammonium cations exchanged in MMt, and the catalytic effect of iron impurities of the organomontmorillonite. Iron could catalyze the decomposition of the primary hydroperoxides formed by photooxidn. of **PP**, which would in turn accelerate the additive consumption and decrease the length of the period before the permanent regime of oxidation is reached.

CC 37-6 (Plastics Manufacture and Processing)

ST photooxidn **polypropylene montmorillonite**

nanocomposite interaction antioxidant

IT Antioxidants

Nanocomposites

(antioxidants effect on photooxidn. of **polypropylene-montmorillonite nanocomposites**)

IT Polymer degradation

(oxidative, photochem.; antioxidants effect on photooxidn. of **polypropylene-montmorillonite nanocomposites**)

IT 25085-53-4, HV 001P

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)

(antioxidants effect on photooxidn. of **polypropylene-montmorillonite nanocomposites**)

IT 108-31-6D, Maleic anhydride, reaction products with **polypropylene**

115-07-1D, Propylene, maleated 1318-93-0D,

Montmorillonite, tallow quaternary ammonium-modified

6683-19-8, Irganox 1010 41556-26-7, Tinuvin 765 215934-22-8,

Fusabond MD 353D 634909-23-2, EXM 948

RL: MOA (Modifier or additive use); USES (Uses)

(antioxidants effect on photooxidn. of **polypropylene-montmorillonite nanocomposites**)

IT 1318-93-0D, **Montmorillonite**, tallow quaternary

ammonium-modified 6683-19-8, Irganox 1010

RL: MOA (Modifier or additive use); USES (Uses)

(antioxidants effect on photooxidn. of **polypropylene-**

montmorillonite nanocomposites)

RN 1318-93-0 HCAPLUS

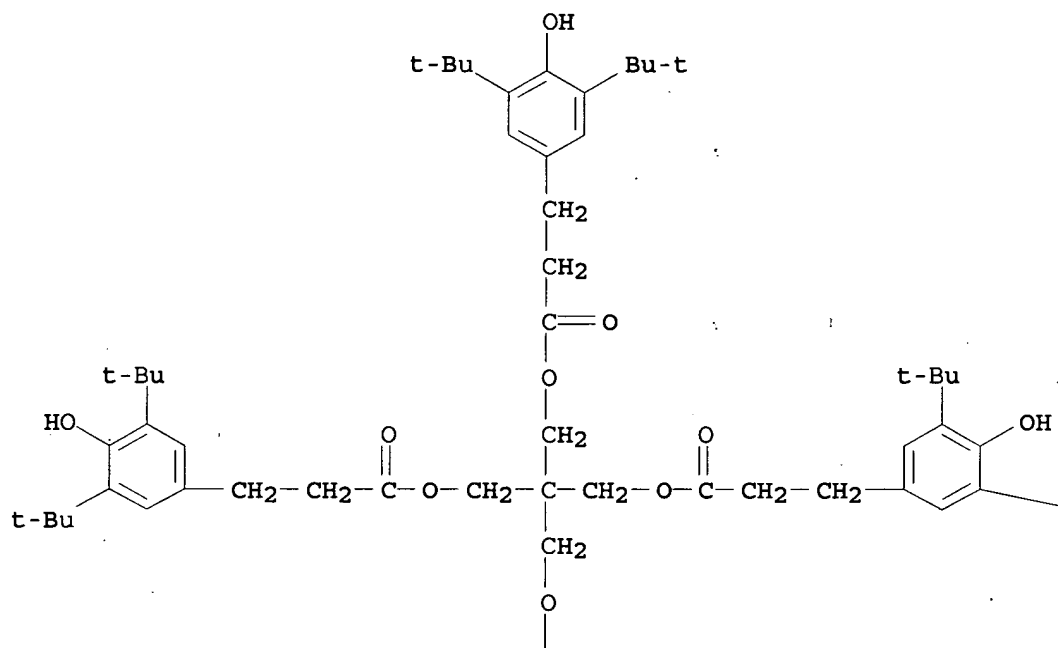
CN Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67) (Ca₀-1Na₀-1) 0.33Si₄ (OH) 2O₁₀.xH₂O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-
oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

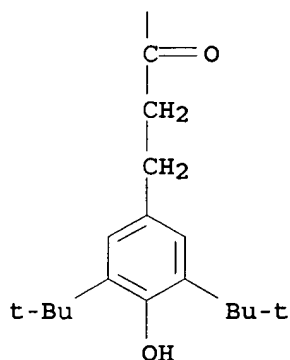
PAGE 1-A



PAGE 1-B

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PAGE 2-A



RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 16 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:926649 HCAPLUS

DN 142:199001

TI **Nanocomposite** of regenerated **polypropylene** and **clay**

IN Jang, Won Yeong; Nam, Jae Do

PA Nano Tech Korea Co., Ltd., S. Korea

SO Repub. Korean Kongkae Taeho Kongbo, No pp. given

CODEN: KRXXA7

DT Patent

LA Korean

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	KR 2002094121	A	20021218	KR 2001-32393	20010611
PRAI	KR 2001-32393		20010611		

AB A **nanocomposite** of a regenerated **polypropylene** and **clay** and a container for an aircraft unit loading container prepared by using the composition are provided to improve the flame retardancy and the lightwt. of the container without deterioration of the strength. The **nanocomposite** comprises 100 parts a regenerated **polypropylene**; 2-10 parts **clay** modified organic-friendly by being mixed with an organic modifier; and 2-20 parts a **phenol** resin. Preferably the organic modifier is selected from the group consisting of di-Me dihydrogenated-tallow ammonium, dimethylbenzyl hydrogenated-tallow ammonium and di-Me hydrogenated-tallow (2-ethylhexyl)ammonium. The **clay** comprises phyllosilicate comprising aluminum or magnesium silicate layers charged anionically; and a sodium ion or a potassium ion charging the space between the layers.

IC ICM C08L023-12

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 60

ST regenerated **polypropylene clay nanocomposite**

IT **Phenolic resins, uses**
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent; **nanocomposite** containing regenerated **polypropylene** and **clay**)

IT **Nanocomposites**
Recycling of plastics and rubbers
(**nanocomposite** containing regenerated **polypropylene** and **clay**)

IT **Clays, uses**
RL: MOA (Modifier or additive use); USES (Uses)
(tallow ammonium derivs.-modified; **nanocomposite** containing regenerated **polypropylene** and **clay**)

IT **9003-07-0, Polypropylene**
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(**nanocomposite** containing regenerated **polypropylene** and **clay**)

IT **9003-07-0, Polypropylene**
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(**nanocomposite** containing regenerated **polypropylene** and **clay**)

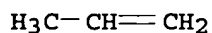
RN 9003-07-0 HCAPLUS

CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



L32 ANSWER 17 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:815521 HCAPLUS

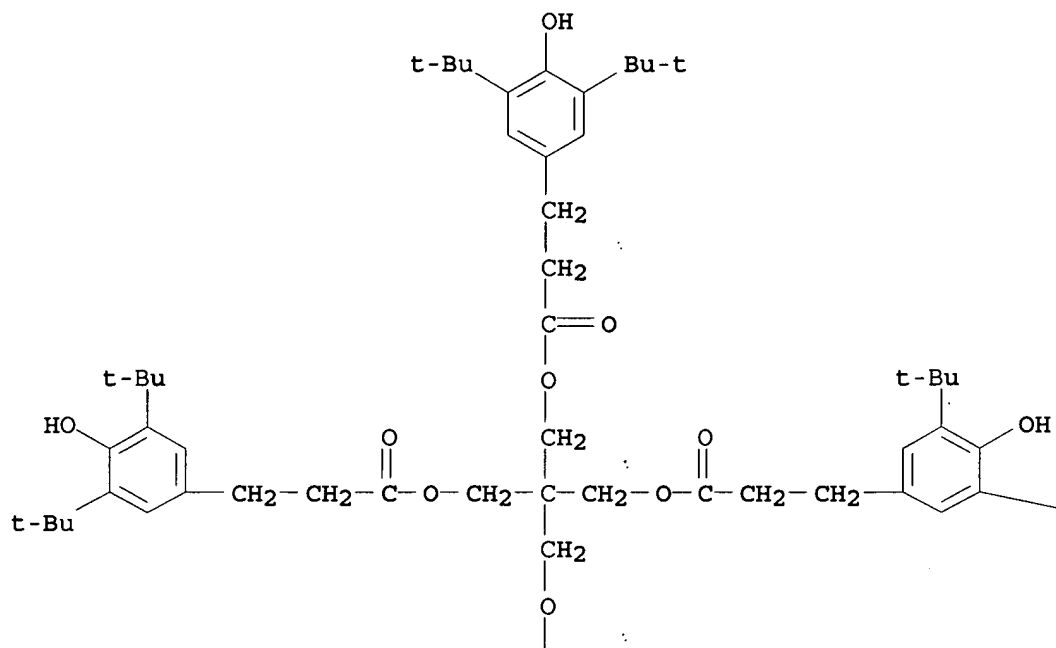
DN 142:7240

TI Preparation and characterization of **polypropylene/layered silicate nanocomposites** using an antioxidant

AU Kim, Jong Hyun; Koo, Chong Min; Choi, Yeong Suk; Wang, Ki Hyun; Chung, In

Jae
CS Department of Chemical and Biomolecular Engineering, Korea Advanced
Institute of Science and Technology, Daejeon, 305-701, S. Korea
SO Polymer ~~(2004)~~ 45(22), 7719-7727
CODEN: POLMAG; ISSN: 0032-3861
PB Elsevier Ltd.
DT Journal
LA English
AB Polypropylene (PP)/layered silicate
nanocomposites were prepared by simple melt mixing of PP,
octadecylamine-modified montmorillonite (MMT) and Irganox 1010
antioxidant. TEM and x-ray scattering confirmed the intercalated state of
the silicates in the nanocomposites. The nanocomposite
containing 5 wt% MMT exhibited higher tensile modulus and storage modulus.
Without the antioxidant, the composites showed lower rheol. properties due
to thermal decomposition of PP. The antioxidant also played an
important role in enhancing the compatibility between PP and
MMT.
CC 37-6 (Plastics Manufacture and Processing)
ST polypropylene montmorillonite nanocomposite
property; antioxidant effect polypropylene
montmorillonite nanocomposite
IT Polymer morphology
Storage modulus
Tensile strength
Thermal properties
(of propylene/montmorillonite
nanocomposites containing antioxidant)
IT 6683-19-8, Irganox 1010
RL: MOA (Modifier or additive use); PRP (Properties); USES
(Uses)
(properties of propylene/montmorillonite
nanocomposites containing)
IT 1318-93-0, Montmorillonite, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(properties of propylene/montmorillonite
nanocomposites containing antioxidant)
IT 9003-07-0, Polypropylene
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(properties of propylene/montmorillonite
nanocomposites containing antioxidant)
IT 6683-19-8, Irganox 1010
RL: MOA (Modifier or additive use); PRP (Properties); USES
(Uses)
(properties of propylene/montmorillonite
nanocomposites containing)
RN 6683-19-8 HCAPLUS
CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-
oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

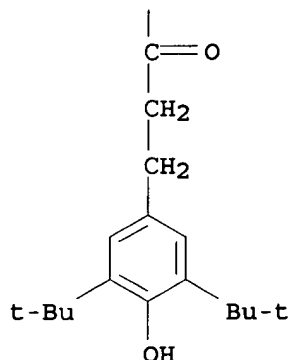
PAGE 1-A



PAGE 1-B

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PAGE 2-A



IT 1318-93-0, Montmorillonite, properties
 RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
 (properties of propylene/montmorillonite
 nanocomposites containing antioxidant)
 RN 1318-93-0 HCAPLUS
 CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O)
 (CA INDEX NAME)

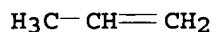
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 9003-07-0, Polypropylene
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (properties of propylene/montmorillonite
 nanocomposites containing antioxidant)
 RN 9003-07-0 HCAPLUS
 CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 18 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2004:606503 HCAPLUS
 DN 141:157932
 TI Stabilization of thermoplastic nanocomposites containing
 synthetic phyllosilicates
 IN Wermter, Henrik; Pfaendner, Rudolf
 PA Ciba Specialty Chemicals Holding Inc., Switz.
 SO PCT Int. Appl., 71 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	WO 2004063268	A1	20040729	WO 2004-EP68	20040108

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ

AU 2004203912	A1	20040729	AU 2004-203912	20040108
CA 2509690	A1	20040729	CA 2004-2509690	20040108
EP 1592741	A1	20051109	EP 2004-700673	20040108

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

BR 2004006799	A	20060117	BR 2004-6799	20040108
CN 1735657	A	20060215	CN 2004-80002100	20040108
JP 2006515382	T	20060525	JP 2006-500532	20040108
US 2006122308	A1	20060608	US 2005-542045	20050713

PRAI EP 2003-405011 A 20030115

WO 2004-EP68 W 20040108

OS MARPAT 141:157932

AB The **nanocomposite** material comprises (a) a synthetic polymer, (b) a natural or synthetic phyllosilicate or a mixture of such phyllosilicates in nanoparticles, (c) a **phenolic** antioxidant and/or a processing stabilizer, and (d) a mono or polyfunctional compound selected from the class consisting of the epoxides, oxazolines, oxazolones, oxazines, isocyanates and/or anhydrides. Thus, a **polypropylene** was stabilized by mixing 1.5 kg of Profaxe PH 350 with 5% of Nanofil 15, 15% of Polybond 3200, 0.1% of calcium stearate, 0.250% of Irgafos 168, 0.25% Irganox 1010, and 0.25% of Araldite GT 7072. The composition was molded by means of injection molding to give a test piece showing yellowness index of 28.8 and oven aging days until embrittlement of 33.

IC ICM C08K013-02

ICS C08L023-00; B32B027-20; C08K009-04; C08K003-34; C08K005-00

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 38

ST stabilization thermoplastic **nanocomposite** synthetic phyllosilicate

IT Bentonite, uses

Mica-group minerals, uses

RL: MOA (Modifier or additive use); USES (Uses)

(**nanocomposites**; stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates).

IT Silicates, uses

RL: MOA (Modifier or additive use); USES (Uses)

(phyllo-; stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT Antioxidants

Nanocomposites

Stabilizing agents

(stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT **Clays**, uses

Phyllosilicate minerals

RL: MOA (Modifier or additive use); USES (Uses)

(stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT Polyolefins

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT Molded plastics, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT 12173-60-3, Illite
 RL: MOA (Modifier or additive use); USES (Uses)
 (Ledikite, **nanocomposites**; stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT 107-64-2, Dimethyldioctadecylammonium chloride
 RL: MOA (Modifier or additive use); USES (Uses)
 (modifier for **montmorillonite**; stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT 1318-00-9, Vermiculite 1318-93-0, Montmorillonite, uses 1319-41-1, Saponite 12172-85-9, Beidellite 12173-47-6, Hectorite 12174-06-0, Nontronite 12285-88-0, Magadiite 12285-95-9, Kenyaite 12286-87-2, Volkonskoite 12417-86-6, Stevensite 12424-32-7, Sauconite 502618-64-6, Nanofil 15
 RL: MOA (Modifier or additive use); USES (Uses)
 (**nanocomposites**; stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT 1305-78-8, Calcium oxide, uses 1592-23-0, Calcium stearate 9003-07-0D, Polypropylene, maleated 196522-45-9, Polybond 3200
 RL: MOA (Modifier or additive use); USES (Uses)
 (stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT 9003-07-0, Profax PH 350
 RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT 2421-28-5, Benzophenone tetracarboxylic acid dianhydride 6683-19-8, Irganox 1010 7128-64-5, Uvitex OB 25068-38-6, Araldite GT 7072 25085-99-8, Araldite MY 790 31570-04-4, Irgafos 168 89421-57-8, Irganox B 225 172451-55-7, Araldite MT 0163 201815-03-4, Irganox HP 136
 RL: MOA (Modifier or additive use); USES (Uses)
 (stabilizers; stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

IT 12173-60-3, Illite
 RL: MOA (Modifier or additive use); USES (Uses)
 (Ledikite, **nanocomposites**; stabilization of thermoplastic **nanocomposites** containing synthetic phyllosilicates)

RN 12173-60-3 HCAPLUS
 CN Illite ([Al_{1.75}(Fe₀₋₁Mg₀₋₁)_{0.25}]K_{0.75}(Si_{3.5}Al_{0.5})[(OH)_{0.5-1}F_{0-0.5}]2O₁₀)
 (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O5Si2	1.75	20328-07-8
O	1.25	17778-80-2
F	0 - 1	14762-94-8
HO	1 - 2	14280-30-9
K	0.75	7440-09-7
Mg	0 - 0.25	7439-95-4
Fe	0 - 0.25	7439-89-6
Al	2.25	7429-90-5

IT 1318-00-9, Vermiculite 1318-93-0,
Montmorillonite, uses 1319-41-1, Saponite
12172-85-9, Beidellite 12173-47-6,
Hectorite 12174-06-0, Nontronite 12285-88-0,
Magadiite 12285-95-9, Kenyaite 12286-87-2,
Volkonskoite 12417-86-6, Stevensite
12424-32-7, Sauconite
RL: MOA (Modifier or additive use); USES (Uses)
(nanocomposites; stabilization of thermoplastic
nanocomposites containing synthetic phyllosilicates)
RN 1318-00-9 HCAPLUS
CN Vermiculite (Mg_{0.33}[Mg₂₋₃(Al₀₋₁Fe₀₋₁)₀₋₁](Si_{2.33-3.33}Al_{0.67-1.67})(OH)₂10.4H₂O) (CA INDEX NAME)

CM 1

CRN 122872-60-0
CMF Al . Fe . H O . Mg . O₃ Si . O
CCI TIS

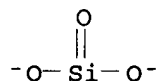
CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 15593-90-5
CMF O₃ Si



CM 4

CRN 14280-30-9
CMF H O

OH⁻

CM 5

CRN 7439-95-4
CMF Mg

Mg

CM 6

CRN 7439-89-6

CMF Fe

Fe

CM 7

CRN 7429-90-5

CMF Al

Al

RN 1318-93-0 HCAPLUS

CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67) (Ca0-1Na0-1) 0.33Si4 (OH) 2O10.xH2O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 1319-41-1 HCAPLUS

CN Saponite ((Mg0.5-1Fe0-0.5) 3 (Si3.67Al0.33) (Na0-0.33Ca0-0.17) (OH) 2O10.4H2O)
(9CI) (CA INDEX NAME)

CM 1

CRN 135663-11-5

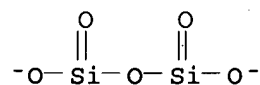
CMF Al . Ca . Fe . H O . Mg . Na . O5 Si2 . O

CCI TIS

CM 2

CRN 20328-07-8

CMF O5 Si2



CM 3

CRN 17778-80-2

CMF O

O

CM 4

CRN 14280-30-9
CMF H OOH⁻

CM 5

CRN 7440-70-2
CMF Ca

Ca

CM 6

CRN 7440-23-5
CMF Na

Na

CM 7

CRN 7439-95-4
CMF Mg

Mg

CM 8

CRN 7439-89-6
CMF Fe

Fe

CM 9

CRN 7429-90-5
CMF Al

Al

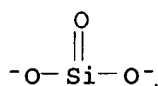
RN 12172-85-9 HCAPLUS
CN Beidellite (Al₂(Si_{3.67}Al_{0.33})(Na_{0-0.33}Ca_{0-0.17})(OH)₂O₁₀.xH₂O) (CA INDEX NAME)

CM 1

CRN 111059-65-5
CMF Al . Ca . Na . O3 Si
CCI TIS

CM 2

CRN 15593-90-5
CMF O3 Si



CM 3

CRN 7440-70-2
CMF Ca

Ca

CM 4

CRN 7440-23-5
CMF Na

Na

CM 5

CRN 7429-90-5
CMF Al

Al

RN 12173-47-6 HCAPLUS
CN Hectorite ((Mg_{2.67}Li_{0.33})Si₄Na_{0.33}[F_{0.5-1}(OH)_{0-0.5}]₂O₁₀) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

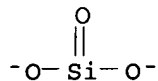
RN 12174-06-0 HCAPLUS
CN Nontronite (Fe₂(Si_{3.67}Al_{0.33})Na_{0.33}(OH)₂O₁₀.xH₂O) (CA INDEX NAME)

CM 1

CRN 111186-70-0
CMF Al . Fe . Na . O3 Si
CCI TIS

CM 2

CRN 15593-90-5
CMF O3 Si



CM 3

CRN 7440-23-5
CMF Na

Na

CM 4

CRN 7439-89-6
CMF Fe

Fe

CM 5

CRN 7429-90-5
CMF Al

Al

RN 12285-88-0 HCAPLUS
CN Magadiite (Si7Na(OH)O14.5H2O) (CA INDEX NAME)

CM 1

CRN 111139-73-2
CMF H O . Na . O . Si
CCI TIS

CM 2

CRN 17778-80-2
CMF O

O

CM 3

CRN 14280-30-9

CMF H O

OH⁻

CM 4

CRN 7440-23-5

CMF Na

Na

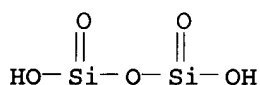
CM 5

CRN 7440-21-3

CMF Si

Si

RN 12285-95-9 HCAPLUS

CN Kenyaite (Na₂H₂₀(Si₂O₅)₁₁) (CA INDEX NAME)

●2/11 Na

RN 12286-87-2 HCAPLUS

CN Volkonskoite (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 12417-86-6 HCAPLUS

CN Stevensite ((Ca_{0.33}-0.5Na_{0-0.33})_{0.33}Mg₃(Si_{3.67}Al_{0.33})(OH)₂₀)₁₀ (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O5Si2	1.84	20328-07-8
O	0.8	17778-80-2

HO	2	14280-30-9
Ca	0.11 - 0.17	7440-70-2
Na	0 - 0.11	7440-23-5
Mg	3	7439-95-4
Al	0.33	7429-90-5

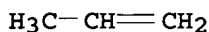
RN 12424-32-7 HCAPLUS
CN Sauconite (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 9003-07-0D, Polypropylene, maleated 196522-45-9
, Polybond 3200
RL: MOA (Modifier or additive use); USES (Uses)
(stabilization of thermoplastic **nanocomposites** containing
synthetic phyllosilicates)
RN 9003-07-0 HCAPLUS
CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1
CMF C3 H6



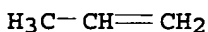
RN 196522-45-9 HCAPLUS
CN Polybond 3200 (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 9003-07-0, Profax PH 350
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(stabilization of thermoplastic **nanocomposites** containing
synthetic phyllosilicates)
RN 9003-07-0 HCAPLUS
CN 1-Propene, homopolymer (CA INDEX NAME)

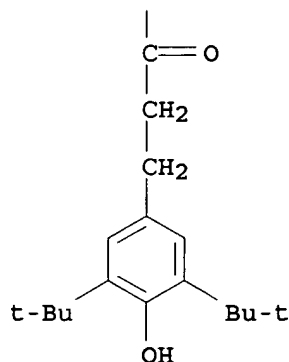
CM 1

CRN 115-07-1
CMF C3 H6



IT 6683-19-8, Irganox 1010
RL: MOA (Modifier or additive use); USES (Uses)
(stabilizers; stabilization of thermoplastic **nanocomposites**
containing synthetic phyllosilicates)
RN 6683-19-8 HCAPLUS
CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-
oxopropoxy)methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

PAGE 2-A



L32 ANSWER 19 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:479328 HCAPLUS

DN 142:115767

TI Polyurethane elastomer-**montmorillonite nanocomposites**
and preparing methods therefor

IN Tang, Tao; Dou, Liyan; Zhao, Zhongfu; Huang, Baotong

PA Changchun Institute of Applied Chemistry, Chinese Academy of Sciences,
Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1398921	A	20030226	CN 2002-129016	20020828
PRAI	CN 2002-129016		20020828		

AB **Nanocomposites** contain polyurethane elastomers 100, maleic anhydride-grafted **polypropylene** or styrene-maleic anhydride copolymer as compatibilizers 5-20, organic substance-modified (ion-exchanged) **montmorillonite** 5-12, and Antioxidant 1010 0.5-2 parts.

IC ICM C08L075-04

ICS C08K003-34; C08K051-03

CC 39-15 (Synthetic Elastomers and Natural Rubber)

ST polyurethane elastomer **montmorillonite** compatibilizer
antioxidant **nanocomposite**

IT Antioxidants

Nanocomposites

Polymer blend compatibilizers

(polyurethane elastomer-**montmorillonite****nanocomposites** containing compatibilizers and antioxidants)

IT Urethane rubber, properties

RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)(polyurethane elastomer-**montmorillonite****nanocomposites** containing compatibilizers and antioxidants)

IT Amines, uses

RL: MOA (Modifier or additive use); USES (Uses)

(primary, reaction products with acids and **montmorillonite**;polyurethane elastomer-**montmorillonite nanocomposites**

containing compatibilizers and antioxidants)

IT Quaternary ammonium compounds, uses

RL: MOA (Modifier or additive use); USES (Uses)
(reaction products with acids and **montmorillonite**;
polyurethane elastomer-**montmorillonite nanocomposites**
containing compatibilizers and antioxidants)

IT Acids, uses
RL: MOA (Modifier or additive use); USES (Uses)
(reaction products with amines and **montmorillonite**;
polyurethane elastomer-**montmorillonite nanocomposites**
containing compatibilizers and antioxidants)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(secondary, reaction products with acids and **montmorillonite**;
polyurethane elastomer-**montmorillonite nanocomposites**
containing compatibilizers and antioxidants)

IT Amines, uses
RL: MOA (Modifier or additive use); USES (Uses)
(tertiary, reaction products with acids and **montmorillonite**;
polyurethane elastomer-**montmorillonite nanocomposites**
containing compatibilizers and antioxidants)

IT 124-30-1DP, Octadecylamine, reaction products with hydrochloric acid and
montmorillonite 1318-93-0DP, Montmorillonite,
reaction products with hydrochloric acid and octadecylamine 7647-01-0DP,
Hydrochloric acid, reaction products with **montmorillonite** and
octadecylamine
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(polyurethane elastomer-**montmorillonite**
nanocomposites containing compatibilizers and antioxidants)

IT 108-31-6D, Maleic anhydride, reaction products with **polypropylene**
6683-19-8, Antioxidant 1010 9003-07-0D,
Polypropylene, maleated 9011-13-6, Maleic anhydride-styrene
copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(polyurethane elastomer-**montmorillonite**
nanocomposites containing compatibilizers and antioxidants)

IT 1318-93-0DP, **Montmorillonite**, reaction products with
hydrochloric acid and octadecylamine
RL: IMF (Industrial manufacture); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(polyurethane elastomer-**montmorillonite**
nanocomposites containing compatibilizers and antioxidants)

RN 1318-93-0 HCAPLUS

CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O)
(CA INDEX NAME)

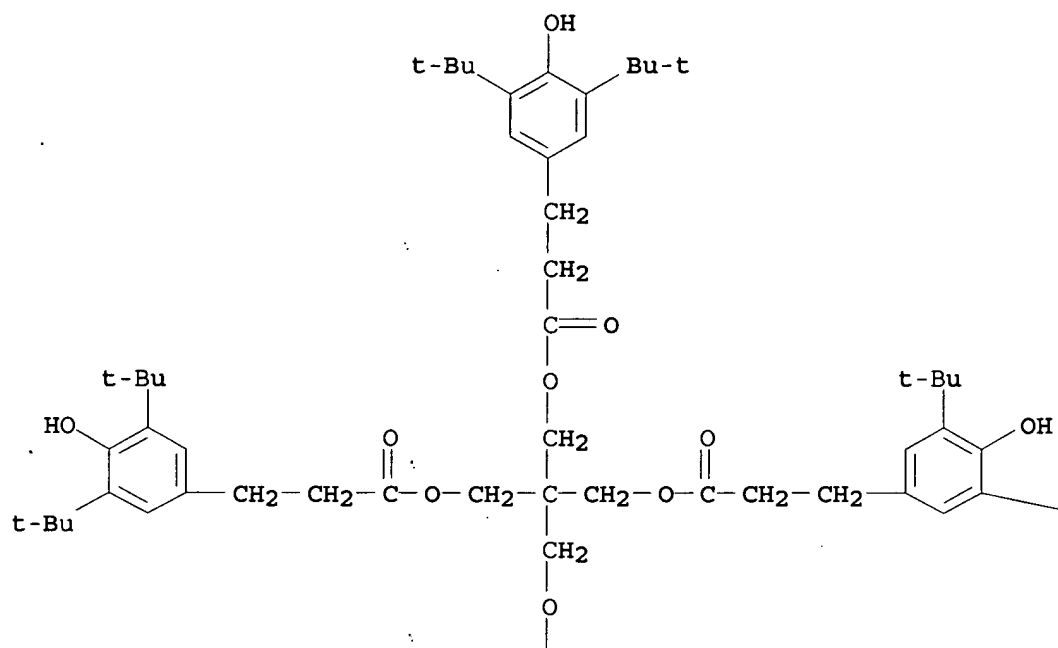
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 6683-19-8, Antioxidant 1010 9003-07-0D,
Polypropylene, maleated
RL: MOA (Modifier or additive use); USES (Uses)
(polyurethane elastomer-**montmorillonite**
nanocomposites containing compatibilizers and antioxidants)

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-
oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

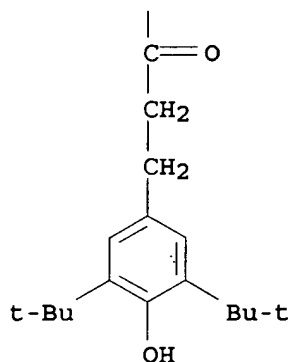
PAGE 1-A



PAGE 1-B

Bu-t

PAGE 2-A



RN 9003-07-0 HCAPLUS
 CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1
 CMF C3 H6

$\text{H}_3\text{C}-\text{CH}=\text{CH}_2$

L32 ANSWER 20 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2003:980379 HCAPLUS
 DN 140:5762
 TI Phenolic resin/clay nanocomposite and its preparation
 IN Zhao, Tong; Zhi, Linjie; Wang, Hongsheng; Yang, Mingshu
 PA Institute of Chemistry, Chinese Academy of Sciences, Peop. Rep. China
 SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 9 pp.
 CODEN: CNXXEV

DT Patent
 LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1361201	A	20020731	CN 2000-136178	20001227
	CN 1117814	B	20030813		
PRAI	CN 2000-136178		20001227		

AB A phenolic resin/clay nanocomposite, in which the clay can be peeled off, is obtained by first dispersing clay, such as montmorillonite, into monomers of a thermoplastic phenolic resin, and then polymerizing the monomers in the presence of an acidic catalyst, such as toluene sulfonic acid; the above nanocomposite can be further mixed with resin or rubber, such as epoxy resin, phenolic resin, PE, PET, PMMA, butadiene-styrene rubber, and ethylene-propylene rubber. Thus, cation-exchanged montmorillonite, phenol, formaldehyde were mixed to receive a colloid system, followed by addition of oxalic acid and polymerizing at 95° for 4 h to receive a phenolic resin/clay nanocomposite, which could be further mixed with polyethylene.

IC ICM C08L061-06
ICS C08K007-00

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 39

ST **phenol** formaldehyde copolymer **phenolic** resin
polyethylene clay **montmorillonite**
nanocomposite

IT Silicates, uses
RL: MOA (Modifier or additive use); USES (Uses)
(layered, **nanocomposite**; **phenolic** resin/
clay nanocomposite and its preparation)

IT Epoxy resins, uses
Ethylene-propylene rubber
Phenolic resins, uses
Polyamides, uses
Polyesters, uses
Styrene-butadiene rubber, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(**nanocomposite**; **phenolic** resin/**clay**
nanocomposite and its preparation)

IT **Nanocomposites**
(**phenolic** resin/**clay nanocomposite** and
its preparation)

IT **Clays**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**phenolic** resin/**clay nanocomposite** and
its preparation)

IT 9010-79-1
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(ethylene-propylene rubber, **nanocomposite**; **phenolic**
resin/**clay nanocomposite** and its preparation)

IT 9003-35-4P, Formaldehyde-**phenol** copolymer
RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical,
engineering or chemical process); POF (Polymer in formulation); TEM
(Technical or engineered material use); PREP (Preparation); PROC
(Process); USES (Uses)
(**nanocomposite**; **phenolic** resin/**clay**
nanocomposite and its preparation)

IT 1318-93-0, **Montmorillonite**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**nanocomposite**; **phenolic** resin/**clay**
nanocomposite and its preparation)

IT 9002-86-2, Poly(vinyl chloride) 9002-88-4, **Polyethylene**
9003-07-0, **Polypropylene** 9003-53-6, Polystyrene
9011-14-7, Poly(methyl methacrylate) 25014-41-9, Polyacrylonitrile
25038-54-4, Nylon 6, uses 25038-59-9, PET polymer, uses 32131-17-2,
Nylon 66, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(**nanocomposite**; **phenolic** resin/**clay**
nanocomposite and its preparation)

IT 104-15-4, Toluene sulfonic acid, uses 144-62-7, Oxalic acid, uses
7647-01-0, Hydrochloric acid, uses 13598-36-2, Phosphonic acid
RL: CAT (Catalyst use); USES (Uses)
(**phenolic** resin/**clay nanocomposite** and
its preparation)

IT 25085-99-8, Epoxy 618
RL: POF (Polymer in formulation); TEM (Technical or engineered material

use); USES (Uses)
(phenolic resin/clay nanocomposite and
its preparation)
IT 9003-55-8
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(styrene-butadiene rubber, nanocomposite; phenolic
resin/clay nanocomposite and its preparation)
IT 9010-79-1
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(ethylene-propylene rubber, nanocomposite; phenolic
resin/clay nanocomposite and its preparation)
RN 9010-79-1 HCAPLUS
CN 1-Propene, polymer with ethene (CA INDEX NAME)

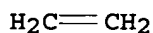
CM 1

CRN 115-07-1
CMF C3 H6



CM 2

CRN 74-85-1
CMF C2 H4



IT 1318-93-0, Montmorillonite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(nanocomposite; phenolic resin/clay
nanocomposite and its preparation)
RN 1318-93-0 HCAPLUS
CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 9003-07-0, Polypropylene
RL: POF (Polymer in formulation); TEM (Technical or engineered material
use); USES (Uses)
(nanocomposite; phenolic resin/clay
nanocomposite and its preparation)
RN 9003-07-0 HCAPLUS
CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

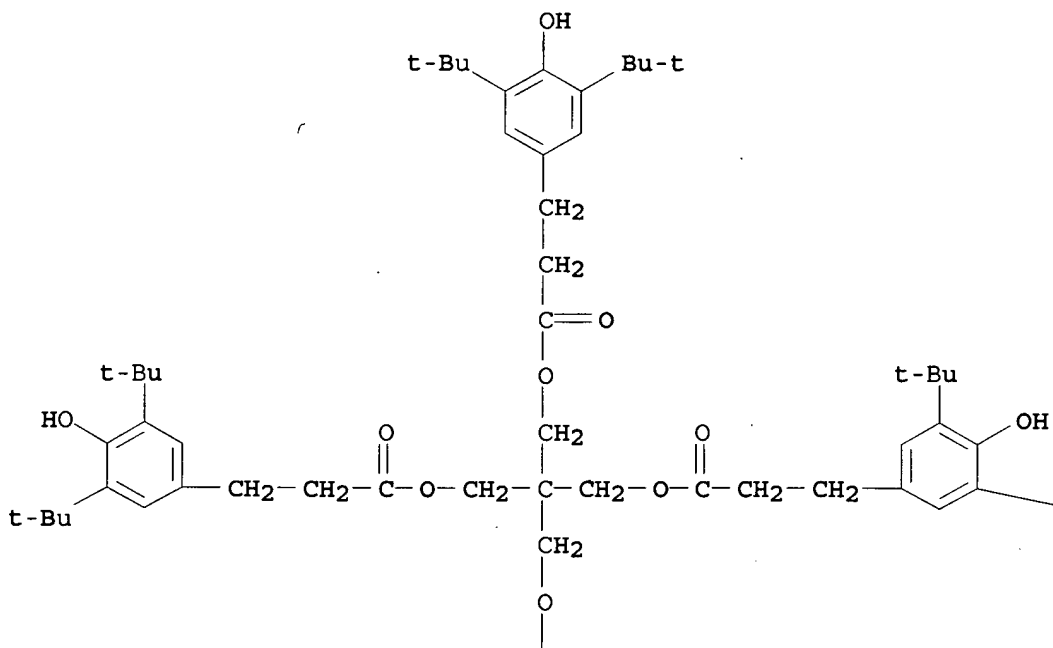
CRN 115-07-1
CMF C3 H6



L32 ANSWER 21 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:792213 HCAPLUS
DN 140:43085
TI Photodegradation of **polypropylene nanocomposites**
AU Mailhot, Benedicte; Morlat, Sandrine; Gardette, Jean-Luc; Boucard, Sylvain; Duchet, Jannick; Gerard, Jean-Francois
CS Laboratoire de Photochimie Moleculaire et Macromoleculaire, Ensemble Universitaire des Cezeaux, Universite Blaise Pascal (Clermont-Ferrand), UMR CNRS #6505, Aubiere, 63177, Fr.
SO Polymer Degradation and Stability (2003), 82(2), 163-167
CODEN: PDSTDW; ISSN: 0141-3910
PB Elsevier Science B.V.
DT Journal
LA English
AB The photochem. behavior of **polypropylene-clay nanocomposites** was studied. The samples were prepared by blending in the molten state isotactic **polypropylene**, organo-modified **montmorillonite**, i.e. layered silicate or **clay** modified with alkyl ammonium cations, and maleic anhydride-grafted **polypropylene** as compatibilizer. The **montmorillonite** dispersion state within the IPP matrix was analyzed by Transmission Electron Microscopy. Accelerated photo ageing of **nanocomposites** carried out at $\lambda > 300$ nm and 60 °C was analyzed by IR spectroscopy. The oxidation products formed have been identified and the contribution of each component of the **nanocomposites** evaluated by studying different formulations. The presence of stabilizers in the formulation has also been analyzed from the comparison of the rates of oxidation of several stabilized and non-stabilized **nanocomposites**.
CC 37-6 (Plastics Manufacture and Processing)
ST **polypropylene montmorillonite clay nanocomposite** photodegrdn compatibilizer photostabilization morphol; layered silicate **nanocomposite** photodegrdn
IT Polymer blend compatibilizers
(effect of compatibilizer on photodegrdn. of **polypropylene nanocomposites**)
IT Polymer morphology
(micromorphol.; photodegrdn. of **polypropylene nanocomposites**)
IT **Clays**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**montmorillonitic**, filler; photodegrdn. of **polypropylene nanocomposites**)
IT Polymer degradation
(photochem.; photodegrdn. of **polypropylene nanocomposites**)
IT Light stabilizers
Nanocomposites
(photodegrdn. of **polypropylene nanocomposites**)
IT Reinforced plastics
RL: PRP (Properties)
(photodegrdn. of **polypropylene nanocomposites**)
IT 25085-53-4, HV 001P
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(HV 001P; photodegrdn. of **polypropylene nanocomposites**)
IT 6683-19-8, Irganox 1010
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; photodegrdn. of **polypropylene**

nanocomposites)
 IT 215934-22-8, Fusabond MD 353D
 RL: MOA (Modifier or additive use); USES (Uses)
 (compatibilizer; photodegrdn. of polypropylene nanocomposites)
 IT 1318-93-0D, Montmorillonite, cationic exchanged with quaternary ammonium bearing benzene ring and an alkyl chain (tallow)organically modified nano-clay 634909-23-2, EXM 948
 RL: MOA (Modifier or additive use); USES (Uses)
 (filler; photodegrdn. of polypropylene nanocomposites)
 IT 41556-26-7, Tinuvin 765
 RL: MOA (Modifier or additive use); USES (Uses)
 (photostabilizer; photodegrdn. of polypropylene nanocomposites)
 IT 6683-19-8, Irganox 1010
 RL: MOA (Modifier or additive use); USES (Uses)
 (antioxidant; photodegrdn. of polypropylene nanocomposites)
 RN 6683-19-8 HCAPLUS
 CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

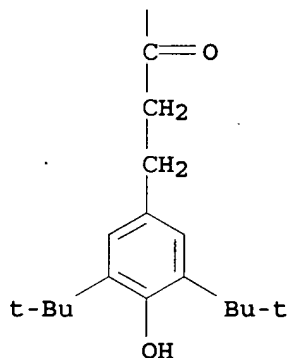
PAGE 1-A



PAGE 1-B

Bu-t

PAGE 2-A



IT 1318-93-0D, **Montmorillonite**, cationic exchanged with
quaternary ammonium bearing benzene ring and an alkyl chain
(tallow)organically modified nano-clay

RL: MOA (Modifier or additive use); USES (Uses)
(filler; photodegrdn. of **polypropylene nanocomposites**
)

RN 1318-93-0 HCAPLUS

CN Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 22 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:531553 HCAPLUS

DN 139:77183

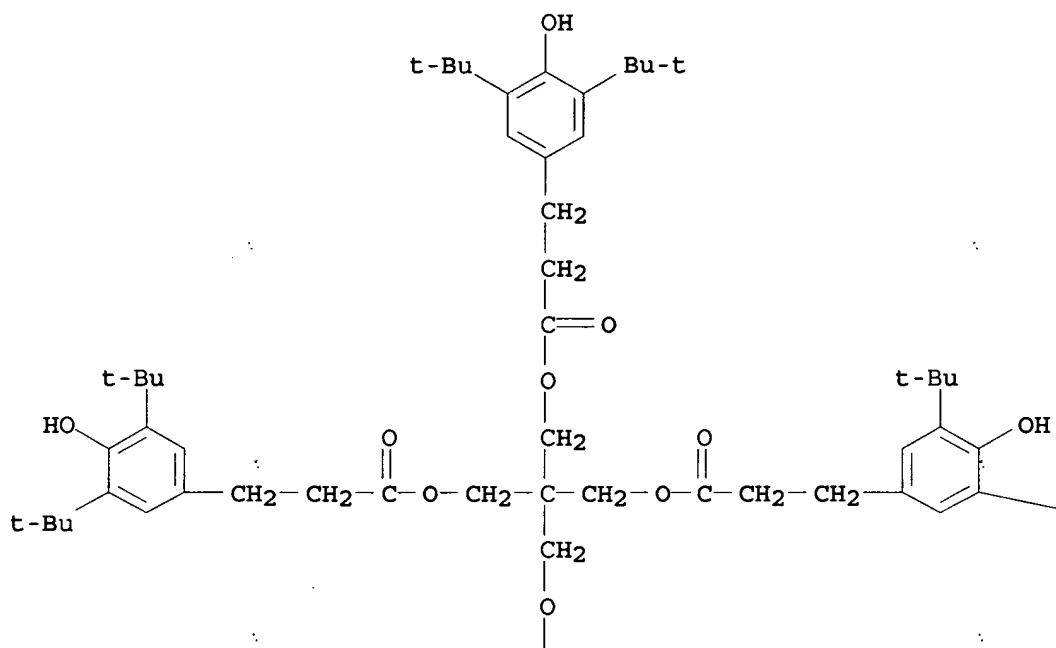
TI Insulated electric cables

IN Hashimoto, Hiroshi; Watanabe, Norimasa; Tokuda, Shigeru

PA The Furukawa Electric Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003197043	A	20030711	JP 2001-397887	20011227
PRAI	JP 2001-397887		20011227		
AB	The insulator material coated on metal wires for the title cables comprises polyolefins 100, organic clay 1-50, and metal hydrate 30-200 weight-parts. The polyolefins may comprise polypropylene , polyethylene , and/or ethylene copolymers . The insulator composition provides the cables with improved nonflammability, tensile strength, durability against moisture, and elec. properties without toxic emission upon combustion.				
IC	ICM H01B007-295 ICS C08K003-22; C08K009-04; C08L023-02; C08L023-26; C08L101-00; H01B003-00				
CC	76-2 (Electric Phenomena) Section cross-reference(s): 38, 56, 57				
ST	polypropylene binder metal hydrate org clay insulator coating cable; polyethylene binder metal hydrate org clay insulator coating cable; ethylene copolymer binder metal hydrate org clay insulator cable				
IT	Polyolefins RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (insulator composition; nonflammablr insulated elec. cables)				
IT	Hydrates RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (metal, insulator composition; nonflammablr insulated elec. cables)				
IT	Electric cables (nonflammablr insulated elec. cables)				
IT	Clays, properties RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (organic, insulator composition; nonflammablr insulated elec. cables)				
IT	Electric insulators (polyolefin and clay and metal hydrate mixture; nonflammablr insulated elec. cables)				
IT	74-85-1D, Ethylene, copolymer with RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (insulator composition; nonflammablr insulated elec. cables)				
IT	1592-23-0, Calcium stearate 6683-19-8 , Irganox 1010 9002-88-4, Polyethylene 9003-07-0 , Polypropylene 21645-51-2 , Higilite H42M, properties 24937-78-8, Evaflex V527-4 249622-67-1, Adtex L6100M 296236-61-8, Cloisite 20A 309295-00-9 , Cloisite 30B RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (nonflammablr insulated elec. cables)				
IT	6683-19-8 , Irganox 1010 9003-07-0 , Polypropylene RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses) (nonflammablr insulated elec. cables)				
RN	6683-19-8 HCAPLUS				
CN	Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)				

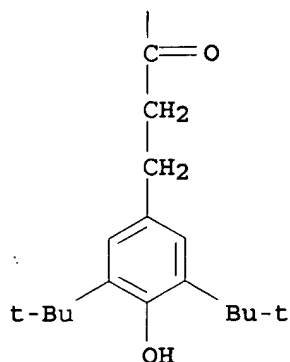
PAGE 1-A



PAGE 1-B

Bu-t

PAGE 2-A



RN 9003-07-0 HCAPLUS
 CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1
 CMF C3 H6



L32 ANSWER 23 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2003:459506 HCAPLUS
 DN 138:402788
 TI **Polypropylene blend/montmorillonite nanocomposites** and their preparation
 IN Tang, Tao; Zhao, Zhongfu; Huang, Baotong
 PA Changchun Inst. of Applied Chemistry, Chinese Academy of Sciences, Peop. Rep. China
 SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 12 pp.
 CODEN: CNXXEV
 DT Patent
 LA Chinese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1344759	A	20020417	CN 2001-133348	20011026
PRAI	CN 2001-133348		20011026		

AB The **nanocomposite** comprises isotactic **polypropylene** 100, Polymer P 5-30, an anhydride-modified **polypropylene** 5-15, organized **montmorillonite** 2-10 and pentaerythritol tetrakis[(3,5-di-tert-butyl-4-hydroxyphenyl)propionate] antioxidant 0.5-2 parts. Thus, 30 parts cation-exchanged **montmorillonite** was melt-mixed with 30 parts nylon 11, ground to give powders, 5 parts of which was blended with isotactic **polypropylene** 40, maleated **polypropylene** 5 and Irganox 1010 (antioxidant) 0.25 parts to give a composite showing tensile elastic modulus 991 MPa and tensile strength 33 MPa.

IC ICM C08L023-06
 ICS C08K003-34
 CC 38-3 (Plastics Fabrication and Uses)

ST **polypropylene polyamide blend montmorillonite nanocomposite** prepn

IT Polymer blends
RL: TEM (Technical or engineered material use); USES (Uses)
(**polypropylene** and polyamides; preparation of **polypropylene blend/montmorillonite nanocomposites**)

IT Antioxidants
Nanocomposites
Polymer blend compatibilizers
(preparation of **polypropylene blend/montmorillonite nanocomposites**)

IT Polyamides, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(preparation of **polypropylene blend/montmorillonite nanocomposites**)

IT Polyurethanes, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(thermoplastic; preparation of **polypropylene blend/montmorillonite nanocomposites**)

IT 6683-19-8, Irganox 1010
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; preparation of **polypropylene blend/montmorillonite nanocomposites**)

IT 108-31-6D, Maleic anhydride, reaction products with **polypropylene**
9003-07-0D, **Polypropylene**, maleated
RL: MOA (Modifier or additive use); USES (Uses)
(compatibilizer; preparation of **polypropylene blend/montmorillonite nanocomposites**)

IT 9003-53-6, Polystyrene 24937-16-4, Nylon 12 25035-04-5, Nylon 11
25038-74-8 25085-53-4, Isotactic **polypropylene** 25587-80-8
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(preparation of **polypropylene blend/montmorillonite nanocomposites**)

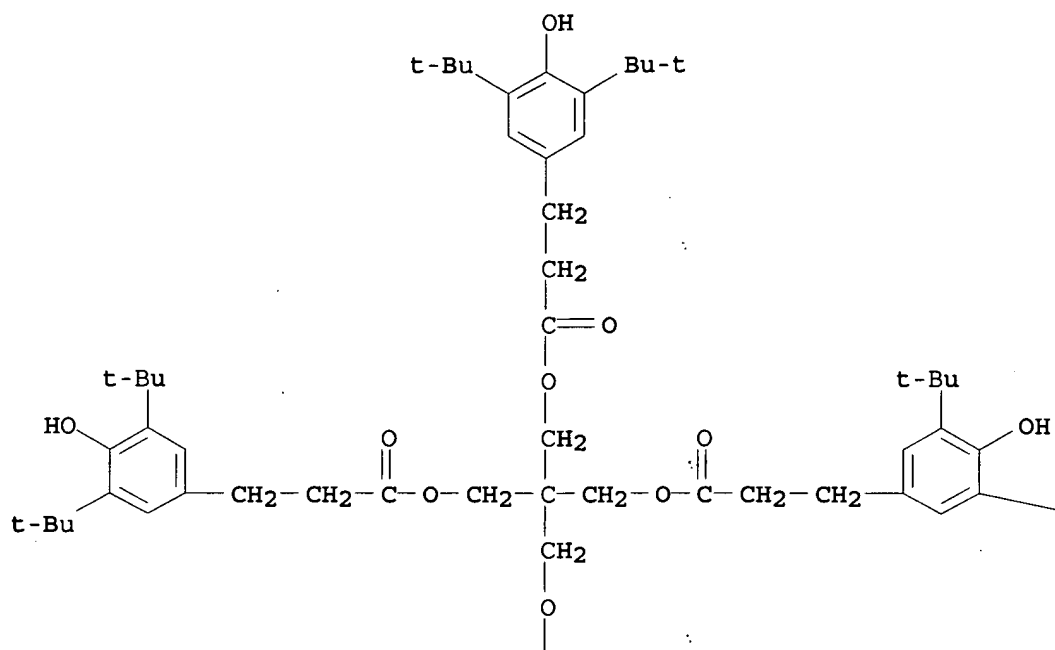
IT 1318-93-0, Montmorillonite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(treated; preparation of **polypropylene blend/montmorillonite nanocomposites**)

IT 6683-19-8, Irganox 1010
RL: MOA (Modifier or additive use); USES (Uses)
(antioxidant; preparation of **polypropylene blend/montmorillonite nanocomposites**)

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

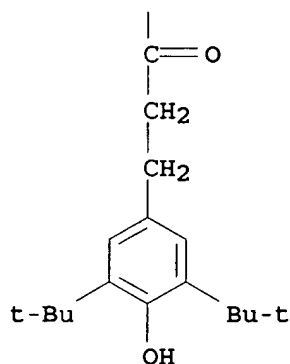
PAGE 1-A



PAGE 1-B

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PAGE 2-A



IT 9003-07-0D, Polypropylene, maleated
 RL: MOA (Modifier or additive use); USES (Uses)
 (compatibilizer; preparation of polypropylene blend/
 montmorillonite nanocomposites)
 RN 9003-07-0 HCAPLUS
 CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



IT 1318-93-0, Montmorillonite, uses
 RL: MOA (Modifier or additive use); USES (Uses)
 (treated; preparation of polypropylene blend/
 montmorillonite nanocomposites)
 RN 1318-93-0 HCAPLUS
 CN Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67)(Ca₀-1Na₀-1)0.33Si₄(OH)2O₁₀.xH₂O)
 (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L32 ANSWER 24 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:376936 HCAPLUS

DN 138:386308

TI Molecular melts containing antioxidants and agents for improving the
 rheology and other properties of polymers and methods for making and using
 the molecular melt

IN Finlayson, Malcolm F.; Walters, Marlin E.; Sorenson, Marius W.; Lee, Robin
 J.; Cummins, Clark H.; Mullins, Michael J.; Cogen, Jeffrey M.

PA Dow Global Technologies Inc., USA

SO PCT Int. Appl., 86 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003040229	A1	20030515	WO 2002-US35201	20021101

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2003138627 A1 20030724 US 2002-285920 20021101

PRAI US 2001-335324P P 20011102

AB Agents such as compds. capable of forming nitrene and carbene groups for improving the rheol. and other properties of polyolefins are mixed with antioxidants to protect these modifiers from reaction during processing and storage. A typical mol. melt was manufactured by heating 168.2 g wet cake of 4,4'-oxybenzenesulfonyl azide containing 40% PhMe at 88° until a clear solution was obtained, adding 334.6 g Irganox 1010, stirring at 94° until a clear solution was obtained, heating this clear solution at 97° under N sparge in a sealed reactor to remove the PhMe, dropping the resulting composition into 3 kg water with stirring, washing with water, and drying.

IC ICM C08K005-00

ICS C08F008-34; C08L051-00; C08K005-13; C08K005-43

CC 37-6 (Plastics Manufacture and Processing)

ST polyolefin rheol modifier antioxidant premixt; oxybenzenesulfonyl azide Irganox 1010 mol melt manuf

IT Carbon black, uses

RL: MOA (Modifier or additive use); USES (Uses)

(N-110, filler; mol. melts containing antioxidants and agents for modifying polyolefins to prepare compatibilizers for composites)

IT Lactones

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)

(antioxidant; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)

IT Quaternary ammonium compounds, uses

RL: MOA (Modifier or additive use); USES (Uses)

(bis(hydrogenated tallow alkyl)dimethyl, chlorides, reaction products, with fluoromica, nanosize filler; mol. melts containing antioxidants and agents for modifying polyolefins to prepare compatibilizers for nanocomposites)

IT Phenols, uses

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses) (compds., antioxidant; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)

IT Mica-group minerals, uses

RL: MOA (Modifier or additive use); USES (Uses)

(fluorine-rich, filler; mol. melts containing antioxidants and agents for modifying polyolefins to prepare compatibilizers for nanocomposites)

IT Amines, uses

Phenols, uses

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses) (hindered, antioxidant; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)

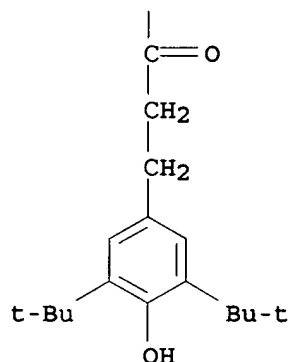
IT Silicates, uses

RL: MOA (Modifier or additive use); USES (Uses)

- (layered, filler; mol. melts containing antioxidants and agents for modifying polyolefins to prepare compatibilizers for **nanocomposites**)
- IT Carbenes (methylene derivatives)
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(metallo, rheol. improver; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT Antioxidants
(mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT Polyolefins
RL: POF (Polymer in formulation); USES (Uses)
(mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT Adhesives
(mol. melts containing antioxidants and agents for modifying polyolefins to improve their adhesiveness)
- IT Electric insulators
(mol. melts containing antioxidants and agents for modifying polyolefins to improve their tensile strength as elec. insulators)
- IT **Nanocomposites**
(mol. melts containing antioxidants and agents for modifying polyolefins to preparation compatibilizers for **nanocomposites**)
- IT Azides
Diazo compounds
Sulfonamides
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(rheol. improver; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT Carboxylic acids, uses
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(thiocarboxylic, esters, antioxidant; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 56453-76-0, **Ethylene-propylene isotactic copolymer**
RL: POF (Polymer in formulation); USES (Uses)
(Inspire DC 108; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 2082-79-3, Irganox 1076 **6683-19-8**, Irganox 1010 7803-49-8D, Hydroxyl amine, derivs. 36443-68-2, Irganox 245 65140-91-2, Irganox 1425 71878-19-8, Chimassorb 944 201815-03-4, Irganox HP 136
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(antioxidant; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 24937-78-8, EVA
RL: POF (Polymer in formulation); USES (Uses)
(base polymer; mol. melts containing antioxidants and agents for modifying polyolefins to prepare compatibilizers for composites)
- IT 525571-93-1P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
(mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 17202-49-2

- RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 9003-07-0, H 700-12 9010-79-1, C 105-02
RL: POF (Polymer in formulation); USES (Uses)
(mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 9002-88-4, **Polyethylene**
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PYP (Physical process); PROC (Process); USES (Uses)
(mol. melts containing antioxidants and agents for modifying polyolefins to prepare compatibilizers for composites)
- IT 182636-27-7D, Somasif ME 100, reaction products with quaternary ammonium chlorides
RL: MOA (Modifier or additive use); USES (Uses)
(nanosize filler; mol. melts containing antioxidants and agents for modifying polyolefins to preparation compatibilizers for **nanocomposites**)
- IT 121-63-1, 4,4'-Oxydibenzenesulfonyl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(rheol. improver precursor; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 7456-68-0P, 4,4'-Oxydibenzenesulfonyl azide 524960-00-7P 524960-01-8P 524960-02-9P 525571-92-0P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process); USES (Uses)
(rheol. improver; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 463-51-4D, Ketene, derivs.
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(rheol. improver; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- IT 6683-19-8, Irganox 1010
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(antioxidant; mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)
- RN 6683-19-8 HCAPLUS
CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

PAGE 2-A



IT 9003-07-0, H 700-12 9010-79-1, C 105-02

RL: POF (Polymer in formulation); USES (Uses)

(mol. melts containing antioxidants and agents for improving the rheol. and other properties of polyolefins)

RN 9003-07-0 HCAPLUS

CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1

CMF C3 H6



RN 9010-79-1 HCAPLUS

CN 1-Propene, polymer with ethene (CA INDEX NAME)

CM 1

CRN 115-07-1

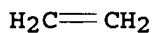
CMF C3 H6



CM 2

CRN 74-85-1

CMF C2 H4



RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L32 ANSWER 25 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:494406 HCAPLUS

DN 137:34002

TI Extrusion and injection of composition containing ultra-high-molecular
polyethylene and clay for nanocomposites

IN Zhu, Xiaoguang; Fan, Jiaqi; Qi, Zongneng

PA Lianke Nanometer Materials Co., Ltd., Peop. Rep. China

SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 6 pp.

CODEN: CNXXEV

DT Patent

LA Chinese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1306034	A	20010801	CN 2001-100016	20010103
PRAI	CN 2001-100016		20010103		

AB The preparation process comprises mixing 0.05-30 parts of **clay** (cation exchange total capacity 50-200 meq/100 g) and 0.05-30 parts of intercalation agent (itaconic acid, styrene) at 60-120°, dispersing the treated **clay** and 0.01-5 parts of additive to 1-50 parts of dispersing medium (acetone, ethanol), mixing the solution with 100 parts of UHMWPE at high speed for 5-10 min, in situ graft intercalating at 80-130°, extruding at 190-260° with a twin screw extruder, and injection molding at 60-120 MPa and 210- 260° to produce pipe, plate, special section materials.

IC ICM C08L023-06

ICS C08K003-34

CC 37-6 (Plastics Manufacture and Processing)

ST **polyethylene UHMWPE clay** extrusion injection
nanocomposite material

IT Antioxidants

Extrusion of plastics and rubbers

Nanocomposites

Polymerization catalysts

(extrusion and injection of composition containing ultra-high-mol.
polyethylene and clay for nanocomposites)

IT Paraffin waxes, uses

RL: MOA (Modifier or additive use); USES (Uses)

(extrusion and injection of composition containing ultra-high-mol.
polyethylene and clay for nanocomposites)IT **Clays**, properties

Intercalation compounds

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(extrusion and injection of composition containing ultra-high-mol.
polyethylene and clay for nanocomposites)

IT Molding of plastics and rubbers

(injection; extrusion and injection of composition containing
ultra-high-mol.**polyethylene and clay for nanocomposites**)

IT 125052-71-3, CA

RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)

(antioxidant; extrusion and injection of composition containing
ultra-high-mol.**polyethylene and clay for nanocomposites**)

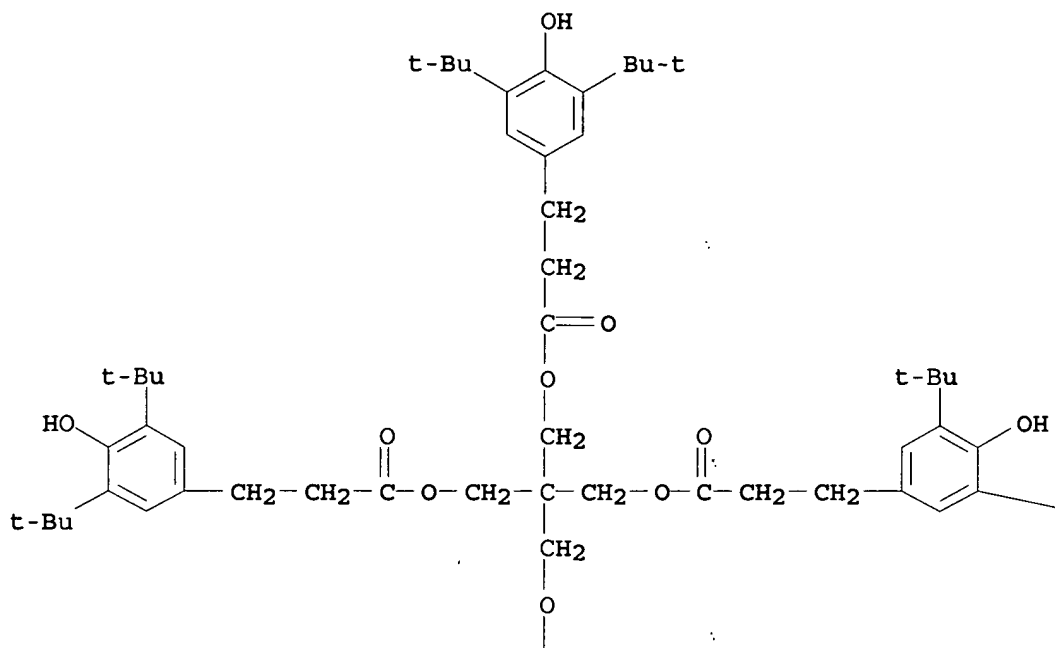
IT 80-43-3, Dicumyl peroxide 94-36-0, Benzoyl peroxide, uses

RL: CAT (Catalyst use); USES (Uses)

(catalyst; extrusion and injection of composition containing ultra-high-mol.
polyethylene and clay for nanocomposites)

- IT 64-17-5, Ethanol, uses 67-64-1, Acetone, uses
RL: MOA (Modifier or additive use); USES (Uses)
(dispersion agent; extrusion and injection of composition containing
ultra-high-mol. **polyethylene and clay for nanocomposites**)
- IT 128-37-0, Antioxidant 264, properties 1318-93-0,
Montmorillonite, properties 6683-19-8, Antioxidant 1010
RL: MOA (Modifier or additive use); PEP (Physical, engineering
or chemical process); PRP (Properties); PYP (Physical process); PROC
(Process); USES (Uses)
(extrusion and injection of composition containing ultra-high-mol.
polyethylene and clay for nanocomposites)
- IT 9002-88-4, **Polyethylene**
RL: PEP (Physical, engineering or chemical process); POF (Polymer in
formulation); PRP (Properties); PYP (Physical process); PROC (Process);
USES (Uses)
(extrusion and injection of composition containing ultra-high-mol.
polyethylene and clay for nanocomposites)
- IT 78-63-7, 2,5-Bis(tert-butylperoxy)-2,5-dimethylhexane
RL: CAT (Catalyst use); USES (Uses)
(initiator; extrusion and injection of composition containing
ultra-high-mol.
polyethylene and clay for nanocomposites)
- IT 97-65-4DP, Itaconic acid, polymer 100-42-5DP, Styrene, polymer
105-76-0DP, Dibutyl maleate, polymer
RL: MOA (Modifier or additive use); PEP (Physical, engineering or chemical
process); PRP (Properties); PYP (Physical process); SPN (Synthetic
preparation); PREP (Preparation); PROC (Process); USES (Uses)
(intercalated; extrusion and injection of composition containing
ultra-high-mol.
polyethylene and clay for nanocomposites)
- IT 1318-93-0, Montmorillonite, properties 6683-19-8
, Antioxidant 1010
RL: MOA (Modifier or additive use); PEP (Physical, engineering
or chemical process); PRP (Properties); PYP (Physical process); PROC
(Process); USES (Uses)
(extrusion and injection of composition containing ultra-high-mol.
polyethylene and clay for nanocomposites)
- RN 1318-93-0 HCAPLUS
CN Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67)(Ca₀-1Na₀-1)0.33Si₄(OH)2O₁₀.xH₂O)
(CA INDEX NAME)
- *** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
- RN 6683-19-8 HCAPLUS
CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-,
2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-
oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

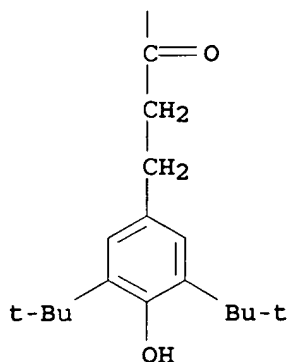
PAGE 1-A



PAGE 1-B

Bu-t

PAGE 2-A



L32 ANSWER 26 OF 26 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:248995 HCAPLUS

DN 137:79611

TI Melt compounding of syndiotactic **polypropylene nanocomposites** containing organophilic layered silicates and in situ formed core/shell nanoparticles

AU Kaempfer, Dirk; Thomann, Ralf; Mulhaupt, Rolf

CS Freiburger Materialforschungszentrum und Institut für Makromolekulare Chemie, Albert-Ludwigs Universität, Freiburg, D-79104, Germany

SO Polymer (2002), 43(10), 2909-2916

CODEN: POLMAG; ISSN: 0032-3861

PB Elsevier Science Ltd.

DT Journal

LA English

AB Syndiotactic **polypropylene** (sPP) compds. containing organophilic layered silicates were prepared by melt extrusion at 220 °C using a co-rotating twin screw extruder to examine the influence of the silicate modification and the addition of maleic-anhydride-grafted isotactic **polypropylene** (iPP-g-MA) as compatibilizer on morphol. development and mech. properties. Synthetic sodium fluoro-mica was used as water-swallowable layered silicate, which was rendered organophilic by cation exchange with protonated octadecylamine. Only compounding of the modified silicate in conjunction with iPP-g-MA afforded exfoliation and dispersion of individual silicate layers, encapsulated in an iPP-g-MA shell, within the **polypropylene** matrix. Interlayer distance increased with increasing content and increasing mol. weight of the compatibilizer. The Young's modulus of the **nanocomposite** increased fivefold from 490 to 2640 MPa. This was attributed to silicate nano-reinforcement and nucleation of sPP crystallization via the iPP-g-MA shell of

the dispersed organophilic silicate nanoparticles. The yield stress was increased to 29 MPa with respect to 16 MPa for the bulk sPP. Morphol. and mech. properties were examined as a function of the silicate-and compatibilizer content.

CC 37-6 (Plastics Manufacture and Processing)

ST syndiotactic **polypropylene** fluorohectorite core shell nanoparticle morphol mech property

IT Nanoparticles

(core/shell; melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

IT Mica-group minerals, uses

RL: MOA (Modifier or additive use); USES (Uses)
 (fluorine-rich; melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

IT Impact strength
 Polymer morphology
 Young's modulus
 (melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

IT Stress, mechanical
 (yield; melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

IT 9003-07-0D, **Polypropylene**, Maleated 150104-15-7,
 Hostaprime HC 5 439917-29-0, Licomont AR 504
 RL: MOA (Modifier or additive use); USES (Uses)
 (compatibilizer; melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

IT 108-31-6D, Maleic anhydride, reaction products with **polypropylene**
 124-30-1D, Octadecylamine, reaction products with synthetic
 fluorohectorite 12173-47-6D, Fluorohectorite, reaction products
 with octadecylamine 182636-27-7D, SOMASIF ME 100, reaction products with
 octadecylamine
 RL: MOA (Modifier or additive use); USES (Uses)
 (melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

IT 26063-22-9, Syndiotactic **polypropylene** 287401-18-7, EOD 96-30
 RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 (melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

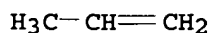
IT 6683-19-8, Irganox 1010 31570-04-4, Irgafos 168
 RL: MOA (Modifier or additive use); USES (Uses)
 (stabilizer; melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

IT 9003-07-0D, **Polypropylene**, Maleated
 RL: MOA (Modifier or additive use); USES (Uses)
 (compatibilizer; melt compounding, morphol., and mech. properties of syndiotactic **polypropylene**/organophilic layered silicates core/shell **nanocomposites** nanoparticles)

RN 9003-07-0 HCAPLUS
 CN 1-Propene, homopolymer (CA INDEX NAME)

CM 1

CRN 115-07-1
 CMF C3 H6



IT 12173-47-6D, Fluorohectorite, reaction products with
 octadecylamine
 RL: MOA (Modifier or additive use); USES (Uses)
 (melt compounding, morphol., and mech. properties of syndiotactic

**polypropylene/organophilic layered silicates core/shell
nanocomposites nanoparticles)**

RN 12173-47-6 HCAPLUS

CN Hectorite ((Mg_{2.67}Li_{0.33})Si₄Na_{0.33}[F_{0.5}-1(OH)_{0-0.5}]2010) (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT 6683-19-8, Irganox 1010

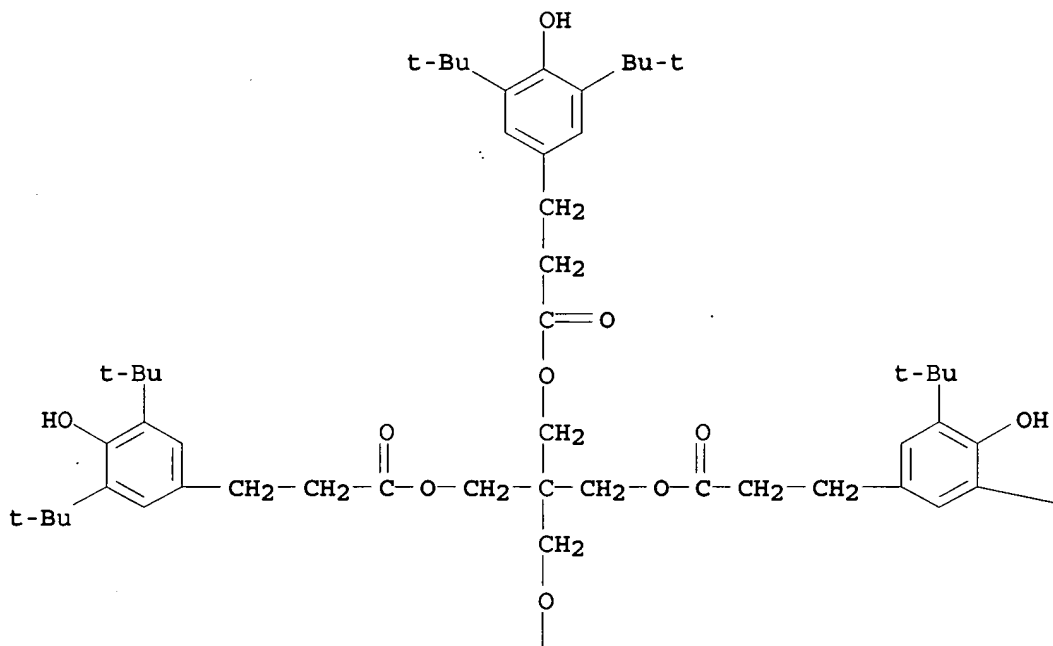
RL: MOA (Modifier or additive use); USES (Uses)

(stabilizer; melt compounding, morphol., and mech. properties of syndiotactic polypropylene/organophilic layered silicates core/shell nanocomposites nanoparticles)

RN 6683-19-8 HCAPLUS

CN Benzenepropanoic acid, 3,5-bis(1,1-dimethylethyl)-4-hydroxy-, 2,2-bis[[3-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]methyl]-1,3-propanediyl ester (9CI) (CA INDEX NAME)

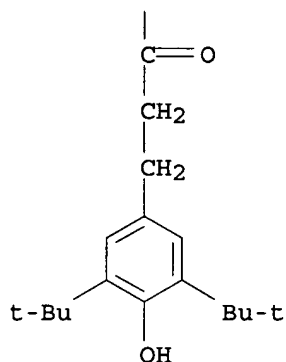
PAGE 1-A



PAGE 1-B

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PAGE 2-A



RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> => d que

L11 26 SEA FILE=REGISTRY ABB=ON (1318-93-0/BI OR 12068-50-7/BI OR
12172-85-9/BI OR 12173-47-6/BI OR 12173-60-3/BI OR 12174-06-0/B
I OR 12174-40-2/BI OR 12285-88-0/BI OR 12285-95-9/BI OR
12286-87-2/BI OR 12304-65-3/BI OR 12417-86-6/BI OR 12424-32-7/B
I OR 12510-56-4/BI OR 1318-00-9/BI OR 1319-41-1/BI OR 1344-28-1
/BI OR 196522-45-9/BI OR 252254-69-6/BI OR 2835-96-3/BI OR
307975-23-1/BI OR 53320-86-8/BI OR 56997-00-3/BI OR 6683-19-8/B
I OR 9003-07-0/BI OR 9010-79-1/BI)
L13 4 SEA FILE=REGISTRY ABB=ON L11 AND PMS/CI
L14 1 SEA FILE=REGISTRY ABB=ON 2835-96-3
L15 1 SEA FILE=REGISTRY ABB=ON 6683-19-8
L16 22 SEA FILE=REGISTRY ABB=ON L11 NOT L13
L17 20 SEA FILE=REGISTRY ABB=ON L16 NOT (L14 OR L15)
L18 697966 SEA FILE=HCAPLUS ABB=ON L13 OR POLYOLFIN? OR PP OR PE OR

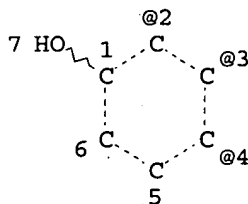
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 PROPYLEN?) (3A)?POLYMER?

L19 430604 SEA FILE=HCAPLUS ABB=ON L14 OR L15 OR PHENOL?
 L20 28935 SEA FILE=HCAPLUS ABB=ON L18 AND L19
 L21 519246 SEA FILE=HCAPLUS ABB=ON L17 OR CLAY# OR MONTMORILLON? OR
 BEIDELLITE OR VOLKONSKOIT? OR LAPONITE? OR HECTORITE? OR
 SAPONITE? OR SAUCONITE? OR MAGADITE? OR KENYAITE? OR SOBOCKITE?
 OR SWINDOD? OR STEVENITE? OR VERMICULITE OR HALLOYSITE? OR
 ALUMIN? (W)?OXIDE? OR HYDROTALCITE? OR ILLITE OR RECTORITE OR
 TAROSOVITE

L22 557301 SEA FILE=HCAPLUS ABB=ON L21 OR SVINDORD? OR TAROSOVITE? OR
 LEDIKITE? OR MICA

L23 1758 SEA FILE=HCAPLUS ABB=ON L20 AND (L21 OR L22)
 L24 52 SEA FILE=HCAPLUS ABB=ON L23 AND NANOCOMPOS?
 L26 1378 SEA FILE=HCAPLUS ABB=ON TARASOVITE OR SWINEFORD? OR CLOISITE
 L27 9 SEA FILE=HCAPLUS ABB=ON L20 AND L26
 L28 55 SEA FILE=HCAPLUS ABB=ON L24 OR L27
 L29 16656 SEA FILE=HCAPLUS ABB=ON L19(L)MOA/RL
 L30 25 SEA FILE=HCAPLUS ABB=ON L28 AND L29
 L31 3 SEA FILE=HCAPLUS ABB=ON L24 AND ?PHENOL? (3A) (MODIF? OR
 STABIL?)

L32 26 SEA FILE=HCAPLUS ABB=ON L30 OR L31
 L37 SCR 1135 AND 1120 AND 1838
 L42 STR



*structure
 covers compounds
 in claims &
 specifications*

NH2 @8

VPA 8-2/3/4 U
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RSPEC I
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

L45 SCR 1700
 L47 16293 SEA FILE=REGISTRY SSS FUL L42 AND L37 AND L45
 L49 39208 SEA FILE=HCAPLUS ABB=ON L47
 L50 295 SEA FILE=HCAPLUS ABB=ON L49(L)MOA/RL
 L51 60 SEA FILE=HCAPLUS ABB=ON L18 AND L50
 L52 8 SEA FILE=HCAPLUS ABB=ON L51 AND (L21 OR L22 OR L26)
 L53 1 SEA FILE=HCAPLUS ABB=ON L52 AND NANO?
 L54 985 SEA FILE=HCAPLUS ABB=ON L49 AND L18
 L55 39 SEA FILE=HCAPLUS ABB=ON L54 AND (L21 OR L22 OR L26)
 L56 3 SEA FILE=HCAPLUS ABB=ON L55 AND NANO?
 L57 2 SEA FILE=HCAPLUS ABB=ON (L32 OR L56 OR L53) NOT L32

2 additional reactions

=> d 157 bib abs ind hitstr

L57 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2003:535153 HCAPLUS

DN 139:261883

TI Photo-oxidative degradation of **polyethylene/montmorillonite nanocomposite**

AU Qin, Huaili; Zhao, Chungui; Zhang, Shimin; Chen, Guangming; Yang, Mingshu

CS Institute of Chemistry, Center for Molecular Science, State Key Laboratory of Engineering Plastics, Chinese Academy of Sciences, Beijing, 100080, Peop. Rep. China

SO Polymer Degradation and Stability (2003), 81(3), 497-500

CODEN: PDSTDW; ISSN: 0141-3910

PB Elsevier Science B.V.

DT Journal

LA English

AB Photo-oxidative degradation is critical to polymer materials. It is even the case in polymer/layered silicate **nanocomposites**. A UV photo-oxidative degradation study on **polyethylene/montmorillonite (PE/MMT) nanocomposite** was carried out by FT-IR technique. It is indicated that the rate of photo-oxidative degradation of **PE/MMT nanocomposite** is much faster than that of pure **PE**. The acceleration of photo-oxidative degradation of **PE/MMT nanocomposite** is due to the effect of MMT and ammonium ion, in which the effect of ammonium ion is primary. It has been found that the dispersion state (either **nano-** or **micro-**) of MMT does not seem conclusive on the acceleration of degradation. **Fe³⁺** modified MMT can also accelerate the photo-oxidative degradation of **PE** matrix.

CC 38-3 (Plastics Fabrication and Uses)

ST photo oxidative degrdn **polyethylene montmorillonite nanocomposite**; organophilic modified **montmorillonite polyethylene nanocomposite** degrdn

IT Polymer degradation

(oxidative, photochem.; photo-oxidative degradation of **polyethylene/montmorillonite nanocomposite**)

IT **Nanocomposites**

(photo-oxidative degradation of **polyethylene/montmorillonite nanocomposite**)

IT 123-30-8, p-Aminophenol 2840-24-6, Trimethyl ammonium bromide 7705-08-0, Iron trichloride, uses 50483-38-0, Dioctadecylmethyl ammonium chloride

RL: NUU (Other use, unclassified); USES (Uses)

(for **montmorillonite** modification; photo-oxidative degradation of **polyethylene/montmorillonite nanocomposite**)

IT 9002-88-4, **Polyethylene**

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)

(low-d., LDPE 112A; photo-oxidative degradation of **polyethylene/montmorillonite nanocomposite**)

IT 1318-93-0D, **Montmorillonite** ((Al_{1.33}-1.67Mg_{0.33}-

0.67)(Ca₀-1Na₀-1)0.33Si₄(OH)2010.xH₂O), sodium-exchanged

RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)

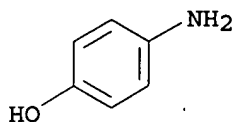
(photo-oxidative degradation of **polyethylene/montmorillonite nanocomposite**)

IT 123-30-8, p-Aminophenol

RL: NUU (Other use, unclassified); USES (Uses)

(for **montmorillonite** modification; photo-oxidative degradation of **polyethylene/montmorillonite nanocomposite**)

RN 123-30-8 HCAPLUS
CN Phenol, 4-amino- (CA INDEX NAME)



IT 1318-93-0D, **Montmorillonite** ((Al_{1.33}-1.67Mg_{0.33}-0.67)(Ca₀-1Na₀-1)0.33Si₄(OH)2O10.xH₂O), sodium-exchanged
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(photo-oxidative degradation of **polyethylene/montmorillonite nanocomposite**)
RN 1318-93-0 HCAPLUS
CN Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67)(Ca₀-1Na₀-1)0.33Si₄(OH)2O10.xH₂O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d 157 bib abs ind hitstr 2

L57 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:782538 HCAPLUS
DN 136:263860
TI Synthesis and properties of polybenzoxazine based composites
AU Takeichi, Tsutomu; Agag, Tarek; Guo, Yong
CS School of Materials Science, Toyohashi University of Technology,
Toyohashi, 441-8580, Japan
SO Recent Research Developments in Polymer Science (2000), 4, 85-105
CODEN: RRDPMX
PB Transworld Research Network
DT Journal
LA English
AB Several kinds of high performance polybenzoxazine (PBa) based composites were prepared by the incorporation of high performance polymers or **clay** fillers into PBa matrix. The combination of polyurethane (PU) and PBa was proved to be a promising route to a novel type of PU/phenolic resin composites, which improved the thermal stability of PU and the toughness of PBa affording either elastic or plastic composites in the film form. By incorporating poly(imide-siloxane)s into PBa matrix, the glass transition temperature (T_g) was increased. The decomposition temps. also increased. Also, novel hybrid **nanocomposites** were prepared by blending organically modified **clay**, OMMT, with a benzoxazine monomer (Ba). The curing temperature of Ba was decreased by the presence of OMMT due to its catalytic activity. The thermal stability of the **nanocomposites** was noticeably enhanced by the inclusion of homogeneously dispersed layered OMMT into PBa matrix.
CC 37-6 (Plastics Manufacture and Processing)
ST polybenzoxazine crosslinking isocyanate terminated **polyethylene** adipate film viscoelasticity; polyimide polysiloxane composite polybenzoxazine phase morphol thermal stability; **montmorillonite clay** alkylammonium modified polybenzoxazine **nanocomposite**
IT **Nanocomposites**
(of alkylammonium-modified **montmorillonite** and

- polybenzoxazine)
- IT Crosslinking
 - (of isocyanate-terminated poly(ethylene adipate) and hydroxy-containing polyimide-polysiloxanes by benzoxazine)
- IT Glass transition temperature
- Viscoelasticity
 - (of isocyanate-terminated poly(ethylene adipate) and hydroxy-containing polyimide-polysiloxanes crosslinked by benzoxazine)
- IT Elongation, mechanical
- Tensile strength
- Young's modulus
 - (of isocyanate-terminated poly(ethylene adipate) crosslinked by benzoxazine)
- IT Thermal stability
 - (of polybenzoxazine-based composites and polybenzoxazine-crosslinked polymers)
- IT Polymer morphology
 - (phase; of block polyimide-polysiloxane blends with polybenzoxazine and polybenzoxazine-crosslinked hydroxy-containing polyimide-polysiloxanes)
- IT Polyurethanes, preparation
 - RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 - (polyester-, polybenzoxazine-crosslinked; preparation and viscoelastic, tensile, and thermal properties of)
- IT Polysiloxanes, properties
 - RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 - (polyether-polyimide-, fluorine-containing, block, polybenzoxazine blends; preparation and viscoelastic, tensile, and thermal properties of blends with polybenzoxazine)
- IT Polysiloxanes, preparation
 - RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 - (polyether-polyimide-, fluorine-containing, hydroxy-containing, polybenzoxazine-crosslinked; preparation and viscoelastic, tensile, and thermal properties of)
- IT Fluoropolymers, properties
 - RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 - (polyether-polyimide-polysiloxane-, block, polybenzoxazine blends; preparation and viscoelastic, tensile, and thermal properties of blends with polybenzoxazine)
- IT Polyimides, properties
 - RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 - (polyether-polysiloxane-, fluorine-containing, block, polybenzoxazine blends; preparation and viscoelastic, tensile, and thermal properties of blends with polybenzoxazine)
- IT Polyimides, preparation
 - RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 - (polyether-siloxane-, fluorine-containing, hydroxy-containing, polybenzoxazine-crosslinked; preparation and viscoelastic, tensile, and thermal properties of)
- IT Polyethers, properties
 - RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
 - (polyimide-polysiloxane-, fluorine-containing, block, polybenzoxazine blends; preparation and viscoelastic, tensile, and thermal properties of blends with polybenzoxazine)
- IT Polyethers, preparation
 - RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 - (polyimide-siloxane-, fluorine-containing, hydroxy-containing, polybenzoxazine-crosslinked; preparation and viscoelastic, tensile, and thermal properties of)
- IT Polymerization
 - (ring-opening; of benzoxazine)

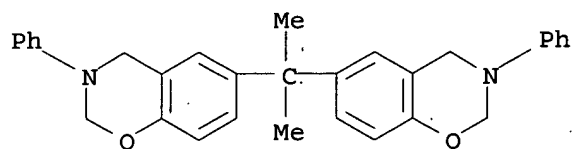
- IT Polymer blends
RL: PRP (Properties)
(thermal stability and phase morphol. of block polyimide-polysiloxanes with polybenzoxazine)
- IT 929-73-7, Dodecylammonium chloride 1838-08-0, Stearyl ammonium chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(montmorillonite modification agent; preparation and properties of polybenzoxazine nanocomposites with alkylammonium-modified montmorillonite)
- IT 248603-42-1P
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and properties of composites with polybenzoxazine)
- IT 1318-93-0, Montmorillonite, properties
RL: PRP (Properties)
(preparation and properties of polybenzoxazine nanocomposites with alkylammonium-modified montmorillonite)
- IT 405058-27-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and properties of polybenzoxazine-crosslinked hydroxy-containing polyimide-polysiloxanes)
- IT 154505-72-3P
RL: POF (Polymer in formulation); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and properties of polyimide-polysiloxane composites and nanocomposites with alkylammonium-modified montmorillonite)
- IT 405058-25-5P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and properties of polybenzoxazine-crosslinked TDI-terminated poly(ethylene adipate))
- IT 405058-26-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis and properties of polybenzoxazine-crosslinked hydroxy-containing polyimide-polysiloxanes)
- IT 1318-93-0, Montmorillonite, properties
RL: PRP (Properties)
(preparation and properties of polybenzoxazine nanocomposites with alkylammonium-modified montmorillonite)
- RN 1318-93-0 HCAPLUS
- CN Montmorillonite ((Al_{1.33}-1.67Mg_{0.33}-0.67)(Ca₀-1Na₀-1)0.33Si₄(OH)2O10.xH₂O)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

- IT 405058-27-7P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and properties of polybenzoxazine-crosslinked hydroxy-containing polyimide-polysiloxanes)
- RN 405058-27-7 HCAPLUS
- CN 1,3-Isobenzofurandione, 5,5'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with α -[(3-aminopropyl)dimethylsilyl]- ω -[[3-(3-aminopropyl)dimethylsilyl]oxy]poly[oxy(dimethylsilylene)], 6,6'-(1-methylethylidene)bis[3,4-dihydro-3-phenyl-2H-1,3-benzoxazine] and 3,3'-oxybis[6-aminophenol]. (9CI) (CA INDEX NAME)

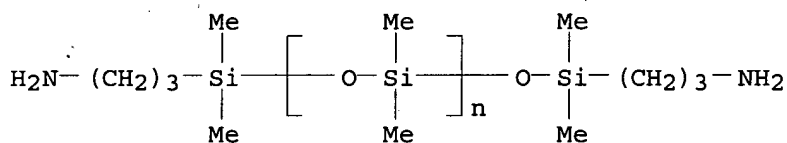
CM 1

CRN 154505-70-1
CMF C31 H30 N2 O2



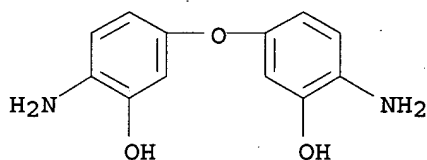
CM 2

CRN 97917-34-5
CMF (C2 H6 O Si)_n C10 H28 N2 O Si2
CCI PMS



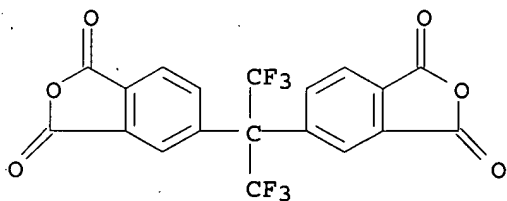
CM 3

CRN 20817-05-4
CMF C12 H12 N2 O3



CM 4

CRN 1107-00-2
CMF C19 H6 F6 O6



IT 405058-26-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(synthesis and properties of polybenzoxazine-crosslinked hydroxy-containing polyimide-polysiloxanes)

RN 405058-26-6 HCAPLUS

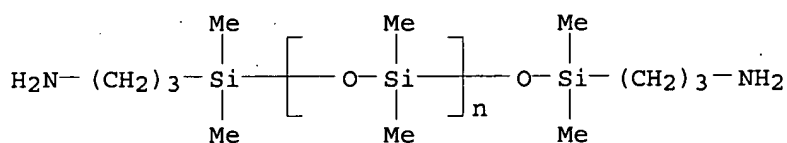
CN 1,3-Isobenzofurandione, 5,5'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, polymer with α -[(3-aminopropyl)dimethylsilyl]- ω -[[[(3-aminopropyl)dimethylsilyl]oxy]poly[oxy(dimethylsilylene)]] and 3,3'-oxybis[6-aminophenol], block (9CI) (CA INDEX NAME)

CM 1

CRN 97917-34-5

CMF (C2 H6 O Si)_n C10 H28 N2 O Si2

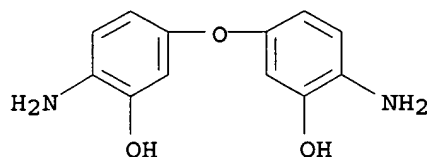
CCI PMS



CM 2

CRN 20817-05-4

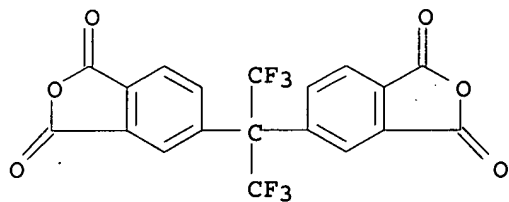
CMF C12 H12 N2 O3



CM 3

CRN 1107-00-2

CMF C19 H6 F6 O6



RE.CNT 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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